

Historic, Archive Document

Do not assume content reflects current scientific knowledge, policies, or practices.

More Than 600,000 Copies Each Issue

LIBRARY
RECEIVED
JUN 19 1916
U. S. Department of Agriculture

FARM *and* FIRESIDE

The National Farm Paper - Twice a Month

ESTABLISHED 1877

5 cents a copy

Saturday, June 17, 1916

Eastern Edition!



The Aéroplane

1½ H.P. 3850
On Skids With **BUILT-IN MAGNETO**
The one great, convincing engine value

The new "Z" FARM ENGINE

Fairbanks-Morse quality — service — dependability — at a popular price, tells the story.

"More than Rated Power and a Wonder at the Price"

Simple—Light Weight—Substantial—Fool-proof Construction—Gun Barrel Cylinder Bore—Leak-proof Compression—Complete with Built-in Magneto. Quick starting even in cold weather. Low first cost—low fuel cost—low maintenance cost. Long, efficient, economical "power service."

See the "Z" and You'll Buy It

Go to your local dealer. Compare it on merit, by any standard. See the features that make the new "Z" the one best engine "buy" for you. When you buy an engine from your dealer you deal with a local representative of the manufacturers. He stands behind the engine he sells. He's responsible to you. He's at your service to see that you are satisfied. See the "Z" and you'll buy it.

Fairbanks, Morse & Co.—Chicago

All Fairbanks-Morse dealers sell "Z" engines on a zone carload low freight basis. If you don't know the local dealer, write us.



Hydraulic Press Cider Profits

Write for FREE BOOKLET based on thirty years PRACTICAL EXPERIENCE.

E. B. VAN ATTA & CO., 118 Penn Ave., Olean, N.Y.

Also Gasoline and Steam Engines, Boilers, Sawmills. Get our prices.

Don't Throw Away Your Worn Tires

European Motorists are getting 10,000 to 15,000 miles from a set of tires by "half-soling" them with Steel-Studded Treads—you can do the same. Durable Treads are guaranteed 5000 miles without puncture without a cent deposit, prepaid express and allow you to judge. Applied in your own garage in thirty minutes.

Special discount on first shipment direct from factory. Write for sample-size tire size.

The Colorado Tire & Leather Co.
689 Tread Bldg., Denver, Colo.
F89 Transportation Bldg., Chicago
720-856 Woolworth Bldg., New York

They are worth money!

FREE My Big New 1916 Buggy Book

SPLIT HICKORY

Just drop me a postal and I will mail you my big new catalog showing 150 stunning styles of Split Hickory Vehicles. Famous for beauty, lightness, strength, and long service. I give

30 Days FREE Road Test and 2 years guarantee. Now I have split the price to save you \$20 to \$40 on your new rig. Catalog explains how. Write for big free book today. Address

THE OHIO CARRIAGE MFG. CO.
H. G. Phelps, Pres.
Station 45, Columbus, Ohio

Catalog shows 150 other styles from **\$39.25 UP**



Victrola IX, \$50
Other styles \$15 to \$400

HAVING a Victrola is just like having the greatest singers in your home.

It places at your command the most famous artists of all the world to sing and play for you the music you know and like best.

Hear your favorite music at any Victor dealer's. Write to us for catalogs.

Victor Talking Machine Co., Camden, N. J.

Victrola



The Editor's Letter

The Sunny South Welcomes County Agent



THAT community helper, the county agent, is spreading like the proverbial green bay tree. In a score and more States it has come to be a common sight any day to find these expert advisers and farm owners with their heads together discussing ways and means for getting better results. Now that the county agent is here, the only wonder is that he wasn't here sooner. To-day our industrial motto is, "Get Results and Get 'Em at Once." The South, as well as the North, East, and West, has fallen into line to make the most of every good idea that these county helpers can suggest. Just note what Mr. P. C. Henry, a North Carolina grower of fruit and vegetables, has to report:

"Two years ago when a county agent was first employed in our county, I could not see the value of such a man to the taxpayers. Now I can. He has helped us in more ways than one. Let me narrate a pleasant change that has taken place in our school district the past year. Our district is about four miles from the county seat and it was selected as one of the demonstration places for the work of our county agent and of the domestic science teacher of the Farm Life School. The county agent, Mr. Mask, organized an agricultural club consisting of members of the corn club, the pig, the poultry, and the tomato clubs, to which he gives valuable instruction each visit. Miss Mather, the domestic science teacher, organized a sewing class of twenty-six members, and taught them the very things they will need in later life—instruction that would cost considerable if secured from a private source. The county agent, however, would not rest content until he induced many of the fathers and mothers of the district to meet at the school every other Friday afternoon in a community betterment club. One trip Mr. Mask brought a fireless cooker and demonstrated it. The next visit he made one for one of the members, so others, seeing how it was done, might make them also. Then he arranged a pruning and spraying demonstration in the orchard of a member. A fruit grower was heard to remark, 'I learned to-day just what I wanted to know about pruning, and the why.'"

Pleasant Change Takes Place

I was glad to find that Mr. Henry voiced his change of heart just as he did in the words, "A pleasant change has taken place in our neighborhood." That statement makes clear his belief that an immediate increase of dollars is not the greatest thing to be desired after employing a county agent. Nevertheless, additional profit must gradually follow as clearer thinking and better living pave the way. Employment of these expert county farm helpers is the logical thing to do in this age of specialization. The big manufacturers, mine operators, and department-store managers do exactly the same thing when they bring in specialists to make a study of their methods and business equipment in order to find the weak places which are responsible for poor results. The training such specialists have received enables them to put their finger on the particular thing or things that are out of joint. The factory operator or the farmer may have possibly located the trouble, but years might have passed before just the right remedy would be found for which the specialist can accurately prescribe at first glance.

Even in the case of what we men are pleased to consider small matters, such as fireless cookers, there is a lot of difference between reading or hearing about making and using them and having one made and demonstrated before one's own eyes. So too with the mixing of spray solutions, treating seed grain, disinfecting poultry houses and stables. Seeing is understanding, and the improvement is soon put into use after once learning how easy the operations are. When Mr. Henry's letter reached me the fly-pest problem was also being attacked here in Springfield, so his account of their community fly crusade was especially interesting. Note how their campaign was introduced:

"Another meeting of our club was devoted to the discussion of 'Sanitation in General and the Fly in Particular.' Much interest was shown in hearing all that can be done to avoid the spreading of typhoid fever. Mr. Mask then arranged a Saturday for the boys to meet him at the schoolhouse, and he assisted them in making a dozen large fly traps so as to catch thousands of flies on the outside of the house while the insects are on their way from the barn to the house. We have used such an outside fly trap for two seasons, and would not be without one. I baited this trap with skim milk poured over light bread, and a few drops of molasses. The flies pass up into the trap through a funnel of wire screen, and perish in a few days."

How a Box Supper Helps

The teacher of these boys might have continued to read and talk about those big fly traps for years without getting them into use. But when the boys could have the fun of a half-holiday helping to build the traps, then setting them to work outside their own houses and catching gallons of flies that would otherwise get into their dwellings, a deep dent was sure to be made in the community mind in favor of getting rural school work on a more practical basis. There is nothing quite so effective for getting a neighborhood on the upgrade as a dozen or two of boys and girls who have become interested in and conversant with improved ways of doing things, and who can go ahead and show their elders that the new way is better than the old. All this wonderful accomplishment brought about by boys' and girls' clubs, which has upset so many old-fashioned ideas, would never have convinced the older heads had there been nothing but reading or talk in it. But when Johnny grows his acre of corn which, by following new methods, is made to yield 20 to 40 bushels above the best in the neighborhood, and Sammy's pig tips the beam at the 300-pound notch at six months old, the new order of things gets a footing at once.

I want to bring one more exhibit from Mr. Henry's neighborhood, which shows how social enjoyments were used to advance educational improvement. Mr. Henry closes his letter thus:

"The members of our tomato club needed some funds to purchase a canning outfit, build a hotbed, etc. How should the necessary funds be raised? The county agent suggested a box supper. This enjoyable social feature did not take great preparation, and yet it brought in the tidy sum of \$26, thus giving the girls sufficient for all their needs. I believe the public school can be made of much greater service to the community than it has been made in the past, if all the people will only show an active community spirit and try to make the community in which they live the best one in the whole county. And our county agent is helping us to make a better use of the schools we have."

Every FARM AND FIRESIDE reader who, as boy or girl, has taken part in a box-social gathering on a balmy spring evening, after the week's work was finished on the farm and in the home, can picture that occasion when \$26 was raised for the girls' club. From this distance, as I write, I can even catch the appetizing odor of those home-cooked viands as the box covers are removed. As my memory harks back, I can yet remember bidding high for the lunch box of a certain girl in which she had stowed the cookery made by her own hand, which she well knew I wanted (both viands and hand). But there is no need to describe the occasion further. It meant jollity, good feeling, and better acquaintance for all taking part. With fuller knowledge of each other came willingness and desire to help work and boost their community to a better, broader standard of living. I can well believe, too, Mr. Henry was one of the best boosters of the lot.

The Editor

In this Matter of Health

one is either with the winners or with the losers.

It's largely a question of right eating—right food. For sound health one must cut out rich, indigestible foods and choose those that are known to contain the elements that build sturdy bodies and keen brains.

Grape-Nuts

is a wonderfully balanced food, made from whole wheat and barley. It contains all the nutriment of the grain, including the mineral phosphates, indispensable in Nature's plan for body and brain rebuilding.

Grape-Nuts is a concentrated food, easy to digest. It is economical, has delicious flavor, comes ready to eat, and has helped thousands in the winning class.

"There's a Reason"

Horse Nails That Hold

insure the best service for the Horse Owner. Someone's time must be wasted, someone's money needlessly spent if the nails fail to hold.

You want maximum service of course. Have Capewell nails used then. It pays. Not cheapest irrespective of quality but the best nails in the world at a fair price.



Catch Fish. Eels, Mink and Musk Rats, in abundance, with the new, folding, steel wire Trap-Net. It catches them like a fly-trap catches flies. Made in all sizes. Write for price list, and free booklet on best bait ever discovered for attracting all kinds of fish. J. F. Gregory, K-229, St. Louis, Mo.

AGENTS AT LAST—A Safe Self-Heating Iron

The only KEROSENE (coal oil) Iron in the world

No competition. Every woman wants a safe self-heating iron. Low priced; every home can afford it. Demands perfectly enormous. Big profits. A winner for agents. Write quick for terms while your territory is still open.

Sample FREE to Workers. THOMAS IRON CO. 2148 Gay St. Dayton, O.

This Car GIVEN and the Agency for your Territory

5 Passenger—28 H. P. Electric Lights and Starter—Removable Rims—Non Skid Tires in Rear—Fully Equipped. A wonder car and you can get one without cost. Write now for full information. Learn how you can get this car without cost and make big money in the automobile business. Don't delay—the offer is strictly limited. Write at once. A postal will do. Address me personally. Ralph Birchard, Pres. Birch Motor College, Inc. Dept. 870, Tower Bldg., Chicago

Delivered TO YOU FREE 30 DAYS FREE TRIAL



CHOICE OF 94 STYLES Colors and Sizes in the famous line of "Ranger" Bicycles, shown in full color in our big new Catalogue. There are eighty-three (83) others, also, shown at factory prices from \$11.95, \$13.80, \$14.75, up. There is a Mead Bicycle for every rider, at a price made possible only by our Factory-Direct-to-Rider sales plan. **SEND NO MONEY** for the 1916 catalog of Bicycles, Tires and Sundries at prices so low they will astonish you. Also particulars of our great new offer to deliver you express prepaid a Ranger Bicycle on one month's free trial without a cent expense to you. **BOYS** you can make money taking orders for bicycles, tires, lamps, sundries, etc., from our big handsome catalog. It's free. It contains "combination offers" for re-fitting your old bicycle like new at very low cost. Also much useful bicycle information. Send for it. **LOW FACTORY PRICES** direct to you. No one else can offer such values and such terms. You cannot afford to buy a bicycle, tires or sundries without first learning what we can offer you. Write now. MEAD CYCLE CO., Dept. 683, CHICAGO, ILL.

FARM and FIRESIDE

Published Twice a Month by THE CROWELL PUBLISHING COMPANY, Springfield, Ohio

Copyright 1916 by The Crowell Publishing Company

Vol. 39

Springfield, Ohio, Saturday, June 17, 1916

No. 19

More Wheat to the Acre

The Part a Thorough Preparation of the Seed Bed Plays in Yields

By HARRY M. ZIEGLER

WHEAT yields have been increased from 10 to 30 bushels to the acre in nearly every State in the winter-wheat belt by deep and early plowing and disking from time to time before planting—a thorough preparation of the seed bed. Wheat that followed corn or potatoes or some other crop requiring a thorough cultivation has yielded best in a majority of cases in the spring-wheat regions.

The early and special cultivation of the acres and the preparation of the seed bed produces conditions favorable in midsummer for the formation of plant food and the conservation of moisture. It also destroys insect pests such as Hessian fly, which is in the flax seed at that time. The cultivation prevents the evaporation of moisture and gives the bacterial and chemical agencies a chance to work. This results in more available plant food. The amount of available plant food in the soil in the fall is a good index of the yield the following year.

Where the rainfall is only sufficient to grow a crop of wheat every other year, summer fallow accomplishes the same thing that deep and early plowing and disking does in the districts of greater rainfall. Summer fallow is letting a field lie idle and keeping the surface of the soil cultivated enough to prevent evaporation of moisture and to assist in the production of available plant food.

"You will get double the yield to the acre that you will on any other ground if you grow wheat after a crop of corn or potatoes or some other cultivated crop," said G. H. Carroll of Hand County, South Dakota, in discussing wheat-growing in his State. "All the seed bed I want is a good piece of ground that was cultivated to corn the year before, clean and free from weeds. I usually sow with an end-gate seeder, 80 acres a day—sow early, as soon as frost is out of the ground. I send a lot of pulverizers after the seeder, six horses on each pulverizer. I sow one bushel of wheat to the acre. I know of no better way than to harrow the ground after the pulverizer."

"I had 750 acres in wheat last year, and threshed 15,000 bushels—that is, 20 bushels to the acre. The average here on cornstalk ground is equal to the average for the United States, about 13½ bushels."

Mr. Carroll grows two crops of wheat after a crop of corn, but the second crop is rarely as good as the first. Some wheat growers in South Dakota grow three crops of wheat after a crop of corn. The third crop, however, is generally not very good. Sometimes Mr. Carroll has cultivated in his wheat—covered it with a corn cultivator. He has also tried drilling; in fact, he has tried all of these ways side by side in the same field and found no difference.

"I have found it a small matter," continued Mr. Carroll, "as to how I covered the wheat. I knew one man who sowed his wheat and, owing to excessive rains, never got to cover it at all. He got as good a crop as anyone. I don't recommend this. It might have happened so for him, but it was a wet year."

Usually spring wheat begins to ripen in South Dakota about August 1st. It is generally cut with a header, running the wheat heads with a foot of straw into the header box, and stacked up like hay. It is threshed as soon as it goes through the sweat, which generally takes about six weeks. Some farmers use binders, shock the grain, and thresh out of the shock. Others stack it after they have cut it with the binder.

"I haul my wheat to the railroad station from the machine," concluded Mr. Carroll. "I am right near the station. Of course the farmers farther away cannot do that; they put it in their granaries and haul it all winter. I haul mine off in big wagons or tanks that hold 125 bushels—four horses on a tank. We use no sacks. The big wagon or tank sits under the spout of the machine, the four horses on, and all in the hands of a good driver. When his wagon is filled with wheat he drives away; another wagon backs in without stopping the machine. It is a fascinating business, threshing and hauling wheat to town. There are always buyers here at the station. Nobody ever had to take a load back because he could

in raising wheat," explained Mr. Bolland. "To overcome this I use early varieties, such as Marquis and Kubanka, a durum wheat. These two varieties, besides being early, seem to resist rust better than the blue-stem varieties, but possibly the most efficient method of fighting rust is to sow the grain early. I cut my wheat with a grain binder and shock it at once. I thresh from the shock, a practice which is quite general in this part of South Dakota. The wheat is fit to thresh after having been in the shock about a week. The wheat is stored in granaries, and hauled to market during the remainder of the year."

Exclusive wheat-raising is a thing of the past in Day County, South Dakota. Many of the farmers

are working into a three-year rotation of corn, some seed grain, such as oats, barley or emmer, and wheat. Sweet clover is also being worked in many of the rotations. The clover follows wheat and precedes corn. This system of farming allows the keeping of live stock, with the result that the farms are manured once in three years, and greatly increased yields have been the consequence.

Ninety-day wheat, a variety originally popular in Montana, is used and liked by many wheat growers in the irrigated sections of Bingham County, Idaho. The expense of growing wheat under irrigation is so much that it doesn't pay unless the grower can command a high price or produce a large yield to the acre. Wheat is grown quite a bit in the irrigated sections of the West as a nurse crop for alfalfa.

"I believe in a firm seed bed that has been fall plowed," declared Arthur J. Snyder of Bingham County, Idaho, "then thoroughly prepared in the spring by first using a spring-tooth harrow, lapping half, following with a spike-tooth harrow, and going over the ground

two ways. I follow this with the float or leveler, and always drill the way the water is to run, using a hoe drill, a drill very much out of date but which gets results. I irrigate but twice, unless the third time is an attempt to wet spots partly missed before. I delay the first irrigation until the wheat begins to burn and turn black. The second irrigation I give just as the kernels begin to fill."

Mr. Snyder cuts his wheat before it is ripe, stacks it, and later threshes it. There have never been enough threshers in the community to reach all of the growers at the right time to thresh from the shock. The wheat is then hauled to the granaries.

"There are especially adapted varieties of wheat for the different localities in the irrigated sections of the west," concluded Mr. Snyder. "Marquis is a variety of rust-resistant wheat, but under irrigation it may not hold the qualities which made it a prize-winner when grown on unirrigated tracts. On my farm it has not been a heavy yielder, but I am trying it again on better soil. Dick Lowe, a favorite on the Twin Falls Tract, is being tried out here for the first time this year. Blue Stem does not shatter, nor does it yield well. When sown as a nurse crop with alfalfa I sow one bushel of clean seed, always treated with formaldehyde, to the acre. When sown alone I use five pecks of seed on rich ground."

The experiences of many wheat growers in Oklahoma have shown that a proper seed bed is the most important part of the operation of growing wheat.

"I have found that early deep plowing, with plenty of cultivation afterward, reduces the chance element with wheat very greatly," said [CONTINUED ON PAGE 17]



Wheat yields on this Middle West farm were increased from 25 to more than 40 bushels to the acre by a thorough preparation of the seed bed and early planting

not sell it. I shipped my wheat to Minneapolis myself last year, just to try it; but I would have done about as well if I had sold it here at the station."

The farmers in Hand County don't fall plow very much. They have found that fall plowing dries out worse than any other kind of soil preparation, probably owing to their light rainfall, which is only 20 inches.

Advises to Plant Wheat Early

"I DO not know of a single thing that is of greater importance than to plant wheat early," E. L. Bolland of Day County, South Dakota, told me when relating his wheat-growing experiences. "I make a practice of plowing all ground for wheat in the fall. If wheat follows corn the ground is not plowed as a rule, but disked in the spring. Before the wheat is seeded the ground is thoroughly dragged with a spike-tooth harrow. A single disk drill is used for sowing. This works the ground considerably, and puts the seed at a uniform depth. The ground is given a second dragging after the grain is sown."

Nothing but the best seed obtainable is planted on the Bolland farm. The seed is graded thoroughly, and cleaned by running it through a fanning mill at least once. Just previous to seeding it is put through a smut machine so constructed that it skims off all light seed and any weed seed, such as wild oats, and at the same time gives it the formalin treatment. This is an absolute safeguard against smut. Four to five pecks of this high-grade seed is sown to the acre.

"Rust is the worst enemy I have to contend with

Fertilizer on Wheat

Its Use Checks Dwindling Yields and Sets New Records

By A. J. LEGG

THE first question that occurs to the practical farmer who considers his farm crops in a business way is, does it pay? A certain yield may be a losing proposition in one part of the country while the same yield may be profitable in another. So the local conditions must be considered when we are making our calculations.

Wheat here in West Virginia may not yield a sufficient crop to pay much above the cost of production. Yet it occupies the soil at a time which, in the absence of other crops on the soil, would permit a waste of plant food from leaching. Nitrogen, the most costly of all plant foods, is also the most easily wasted by leaching. The wheat crop can thus be used to save a waste of nitrogen during the fall and winter months.

When the locality in which I live was first settled, the farmers could grow fairly good crops of wheat on freshly cleared lands, especially the hill lands that faced the south or southeast. They could not get such large yields as were obtained on the virgin soils of the West, but it was reasonable to expect a yield of from 12 to 20 bushels per acre of well-matured wheat. In the course of a few years, however, the wheat failed to fill well, though the straw was usually large enough. The farmer who would grow wheat must go into the forest and clear more land. Finally the wheat crop was almost a complete failure. I feel safe in saying that the average yield of wheat here did not reach five bushels per acre and most of our farmers had quit trying to grow it.

That was about twenty-five years ago. Flour was cheap then, and many farmers preferred to buy their flour even after they found that the use of fertilizer would aid them materially in growing wheat. Some bought fertilizer and used it on their wheat and found that with the aid of fertilizer they could grow from 10 to 18 bushels per acre on old sod fields that were turned and prepared for wheat by harrowing. Most of them used 200 pounds per acre of a complete fertilizer; a 2-8-2 fertilizer was the favorite.

There was a prejudice against an acid phosphate alone, as we were told that the cheap fertilizers were only stimulants and were injurious to the soil. The complete fertilizers, on the other hand, were costly, and it was a difficult matter to calculate any profit from the wheat crop with fertilizer costing from \$25 to \$28 per ton. So one after another dropped out, until very few farmers grew wheat at all.

Use Legumes

ONE farmer of my acquaintance told me that he had used a good grade of complete fertilizer, also a phosphate, potash, and acid phosphate separately, drilling them in strips clear across his wheat field. When harvest came he had a good crop of wheat, but could not tell by the looks of the wheat which fertilizer gave best results.

I have experimented with different kinds of fertilizers on wheat several times, and my experience is that for the money expended acid phosphate always comes out best. I am supported in this by Professor Hunt, who says in "Cereals in America," page 75: "While field experiments indicate that the relative importance of fertilizing constituents depends upon the soil, throughout the drift area of the United States, phosphoric acid is the only fertilizing ingredient which, when applied singly, has been found generally to influence the yield of wheat."

An analysis of wheat and straw shows that the crop takes much more nitrogen and considerably more potash from the soil than it does phosphoric acid. We are naturally led to conclude that a nitrogenous fertilizer would be required for the crop. This would be true if our soil had plenty of phosphorus and was deficient in nitrogen.

I will refer to a recent bulletin issued by the West Virginia Experiment Station, which says that there is ten times as much potash in the average West Virginia soil as nitrogen, and vastly more nitrogen than phosphoric acid. Of course, the nitrogen supply must be kept up in the soil, but this must be done by the use of legumes and the application of stable manure. Commercial nitrogen is too costly to convert into a wheat crop, or into any other cereal crop.

Phosphorus is the most deficient element in our soils, and since an application of phosphoric acid not only furnishes the needed plant food but also tends to rush the crop to maturity, it is especially well adapted to the wheat crop.

By consulting the threshing-machine men last fall, I was able to get a pretty accurate estimate of the wheat grown last year in this (Nicholas) county. At a conservative estimate it was 50,000 bushels. Ten years ago the county's wheat crop was probably not over 5,000 bushels.

A few years ago I spread caustic lime over a small plot of ground just before the wheat drill, then drilled acid phosphate in with my wheat. At harvest time I found a marked difference in favor of the limed part. A few farmers recently have used about one ton of caustic lime per acre on their wheat ground before sowing the wheat, and then sowed the wheat with acid phosphate drilled in with the wheat. In some instances this has resulted in a crop of from 25 to 27 bushels per acre from this plan.

Save the Manure

It Contains Well-Balanced Plant Food

By G. M. TREDWAY

SOME years ago the farmers of this section (southeastern Kansas) were imbued with the idea that they could raise better crops as well as enrich their soils by the use of commercial fertilizers.

Consequently the implement dealers began shipping it in by carload lots to supply the demand. The dealers did a thriving and profitable business in the

ments taken from the soil by the crop can be returned in the manure. The liquid portions of the manure contain about three fourths of the nitrogen and practically all of the potash voided by the animal. It is of great importance that as much as these be saved as possible. This can be accomplished by using sufficient material as bedding to absorb it, or by draining it into a concrete pit.

It is also important to have the manure hauled to the fields as soon as possible after it is made. To leave manure exposed to rain, wind, and sun is to lose about one half its value. Then, too, the manure improves the physical condition of the soil, increasing its aeration, water-holding capacity, and temperature.

Soil Requirements

Fertilizers Double Crop on Poor Land

By CLYDE A. WAUGH

THOSE 50 and 55 bushels to the acre wheat crops don't "just grow" any more than does a load of prime finished baby beeves. The cattle are never allowed to lose their calf fat and are fed liberally of a balanced ration from the day they are born until they go in the car for market.

Fifty-five-bushel wheat crops, such as seventeen-year-old Dewey Haines of Ohio grew last year, must have plenty of a balanced plant-food ration to give them a quick start in the fall, to enable them to resist disease and insect attacks, to make enough growth in fall to cover the ground before winter sets in, to start out early in spring, and to make a straight standing, early maturing bumper crop of first quality. It is just as important that you know the food requirements of the wheat crop as it is that the "eye of the feeder know his cattle."

Many of the same principles that apply to animal feeding apply to plant feeding. For instance, it is the same nitrogen that forms the essential constituent of protein in animal foods that is the principal constituent of ammonia in fertilizers.

In feeding young animals, protein is the muscle and bone builder; in plant feeding it is ammonia that gives the plants a quick start and heavy stalk or stem growth.

Balance Manure

BESIDES the nitrogen in ammonia and proteins, plants and animals need other foods to make their growth complete. Phosphoric acid, for instance, fed to plants is a crop ripener and a grain plumper. Potash is the stalk strengthener and the grain filler. Wheat needs a fair amount of ammonia for a quick start, a large amount of phosphoric acid for plump, hard, early maturing grains, and a fair amount of potash to give strong straw and well-filled heads.

All soils contain the plant-food ingredients for crop production, but in varying proportions. Sandy soils, for instance, contain little of the element nitrogen in the form of ammonia, only a fair amount of phosphoric acid and a small amount of potash. Hence a wheat crop on a sandy soil usually requires a

greater amount of plant food than on a loam soil, and also requires a plant food carrying a higher percentage of all three of the elements of plant food than does the loam.

The addition of 40 pounds of acid phosphate to a ton of manure makes it a balanced plant food, and almost doubles its value. Every farm should utilize all the manure it can produce, but even when all manure is carefully conserved and applied, not one farm in a hundred produces enough to maintain sufficient fertility.

Commercial fertilizers contain the same plant-food ingredients found in manure, but supply them in a more available and concentrated form.

On extremely poor soils an application of fertilizer has been known to double wheat yields. On our home farm last year it enabled us to raise 50 bushels of wheat per acre. In tests on farms in thirteen Indiana counties, fertilizers increased wheat yields 8.44 bushels per acre. Thirty years of experimental work at the Pennsylvania State College of Agriculture has shown that judicious applications of fertilizer on wheat made a gain of 74 per cent in yield per acre.

If no manure is used on the wheat crop, 300 to 500 pounds of fertilizer through the fertilizer attachment of the wheat drill at time of planting, or through the broadcast lime and fertilizer distributor previous to planting, should be applied. If manure is used, apply 200 to 300 pounds per acre in the same manner.

On a sandy soil a fertilizer analyzing 2 to 4 per cent of ammonia, 8 to 10 per cent of available phosphoric acid, and 3 to 5 per cent of potash is likely to make up for the deficiencies of the soil and meet the needs of the wheat crop.

EW



This field of wheat threshed 37 bushels to the acre, and the straw was of excellent quality. Sufficient plant food of the right kind makes such yields a regular occurrence

sale of drills, too, which would broadcast the fertilizer while seeding the grain.

The various packing houses compounded special fertilizer for the varied small grains, corn, grass, potatoes, etc. The cost varied from about \$22 to \$30 per ton. Some who first used it claimed that the fertilizer was distasteful to chinch bugs.

Well, when the season was favorable, the wheat crop was good; but when the season was unfavorable the crop was as poor as if no fertilizer had been used. Finally, after a series of years, it was abandoned as a failure. And, oh, how much the "season" is blamed! Failure to get a crop in on time, failure to cultivate properly, failure to get a large crop through any other cause, is invariably attributed to the "season." However, fertilizer has been abandoned universally in southeastern Kansas. The dealers no longer handle it, except an occasional order from someone in the town who wants to plant half of his 50-foot back lot to potatoes and puts a handful in each hill.

Nevertheless, the farmer has at hand a cheap fertilizer in the ordinary barnyard manure. The term "barnyard manure" is used through force of habit. The best farmers nowadays are saving all the manure made, and keep it under a roof. This is better for the manure as well as for the stock.

Practically all the nitrogen, phosphorus, and potash in the feeds is voided in the manure, except in the case of growing animals. While all these elements are used to build up the tissues of the animal, at the same time these processes involve the breaking down of body cells, and this is thrown off in the waste.

By careful handling the greater part of the ele-

Getting Alfalfa to Grow

Experience Brings Out Many Helps Not Found in Books

By B. D. STOCKWELL

I FOUND at the outset that I would have to decide which of the various theories about the best way to grow alfalfa was correct. I talked with men who had given it a trial, and I read all I could find on the subject. Out of the conflicting advice I finally arrived at a few truths, and here they are: Alfalfa must have a well-drained soil. Mine was rolling except for one hollow, which I drained with tile. If the soil is not naturally well drained and you are unwilling to drain it, don't try to grow alfalfa.

The next important thing is to find out whether the soil needs lime. Alfalfa will not do well on an acid soil, and if moss, plantain, or crab grass is growing on the land, it is nearly always a sure sign of a sour soil. A more accurate test is to take a few small handfuls of soil from different parts of the field and mix them together in a clean dish. Add rain water till the soil is just stiff enough to hold its shape when you put your finger down into it.

Having procured from a drug store a few strips of blue litmus paper (they cost but a few cents) put one of the strips in the hole left in the mud by your finger. Press the soil up tight around the litmus paper and leave for an hour. Litmus paper is what chemists call an "indicator." It will stay blue if the soil is sweet, will turn pink if it is only slightly sour, and red if strongly sour.

If at end of the hour it turns pink, as mine did, that means the land needs from a ton to a ton and a half of lime to the acre. I didn't know whether to put on quicklime, slaked lime, or ground limestone. I had heard all of them advocated. But I finally chose ground limestone. It doesn't burn the soil, is the cheapest, and is high in lime carbonate, which neutralizes the acid in the soil without leaving any injurious by-products.

Here let me give a word of caution about ordering lime. A friend of mine who had been watching my alfalfa experiments came to me last year and said: "I'm in an awful fix. My limestone is all mud." He had bought a carload of lime which had been shipped to his depot in an open freight car, and the night before he was ready to unload it there was a heavy rain. It was just one mass of slime. The most convenient way to buy lime is in sacks, but if you get it in bulk be sure to have it shipped in a covered car.

After I had spread my limestone over the land at the rate of a ton and a half to the acre I began to hunt around for good seed. The advice "Buy good seed" didn't mean any more to me than it has probably meant to you. You can say to yourself: "I might as well go down to Bill Jones' store and get my alfalfa seed there. I don't think he'll beat me." Or you can send off to a good seed house and get it. But if you send off, don't send too far. Seed from the South, especially, may winter-kill in States farther north.

The Seed Germinates Slowly

THE next thing, if you wish to economize on seed, is to put it in a condition to germinate. I have heard alfalfa growers say they couldn't get a good stand

with less than 15 or 20 pounds of seed to the acre. I don't doubt it, because alfalfa seed will sometimes lie in the ground year after year without germinating. You can figure that unless you do something to the seed about half of it will fail to germinate. One way to treat seed is with a home-made scarifier. Professor Hughes of the Iowa Experiment Station at Ames invented this device a few years ago. It works something like a fanning mill and the seed is driven

take your alfalfa seed and spread it out over the sand. I sow my alfalfa seed at the rate of eight pounds to the acre, so I put in about a bushel of seed for an eight-acre field. A hotbed 6x8 feet is about the right size. Then I take a board and work the alfalfa seed into the sand in about the same manner as you would level off a cement sidewalk. I leave it there for forty-eight hours, and at the end of that time the seed is ready to plant. The warm, moist sand swells and softens the outer hull of the seed so that when the seed is put in the ground it sprouts quickly and vigorously.

To get the seed out of the hotbed, simply shovel up the sand and put the sand, which of course contains the seed, through a sieve made of fly screen (14 meshes to the inch). This will retain the seed and some of the sand. Put the seed-and-sand mixture in a drill and it is ready to sow. Be sure to allow for the amount of sand when setting the drill. Another method which I am now working on as a means of hastening germination is still simpler, and prevents any possible loss of seed. Here it is:

Put down a layer of sand on a moist surface, cover with a cloth, spread your seed on the cloth, then spread another cloth over the seed and put more sand on the upper cloth. Sprinkle warm water over it and leave forty-eight hours; then remove your seed from between the cloths. This method promises to be the most practical of all.

I sow my alfalfa with a four-inch drill set at a light depth and with all the pressure off the disks. This puts the seed in the ground from one half to three fourths of an inch deep. Some growers prefer to broadcast the seed, but by so doing you run the risk of loss by birds, winds, and surface washing.

On a field where alfalfa is grown for the first time inoculation is absolutely necessary. I prefer a commercial culture rather than using soil from someone's alfalfa or sweet-clover field. If you get soil from such a place you are bound to get all kinds of weed seed, and alfalfa can't work against weeds, especially at the start. Full directions for using the culture come with the package. There are various companies making cultures. I prefer to deal with a reliable bacteriological laboratory.

In preparing the ground for alfalfa, I plow in the fall and let it alone till spring. Then I harrow it well and use either an alfalfa cultivator or a very heavy roller. The idea is to work the soil till there are no air spaces left below the surface and so the alfalfa roots will find plenty of firm, mellow ground. Then I cultivate the land during the summer and drill in the alfalfa seed in August. I am opposed to spring seeding of alfalfa because one is generally too busy at that time and there is a tendency to slight the work.

Air Spaces Prevent Heating

DON'T cut alfalfa the first year if seeded in the summer. One grower who has had long experience with it tried that once, and he never got that particular field back in shape. The temptation is to clip it and get the hay, but it will winter well only when left uncut.

Cultivating alfalfa with the proper tools is a good thing. Cultivate at right angles to the direction of drilling. A disk drill with the disks set at a slight angle to the line of draft makes a good cultivator.

My alfalfa field is now well established, and I have been getting three good cuttings a year for the last four years. Several times I have been tempted to take a fourth cutting, but as the three cuttings give me about four tons per acre I have been satisfied with that. Here in Ohio it is not advisable to cut alfalfa after the fifteenth or twentieth of September.

Opinions differ somewhat as to the time of cutting. I watch for the tender offshoots from the base of the plants, and when these appear I start the mower. After cutting it is best handled about like clover hay, but if stored in a barn mow put in old planks, empty barrels, or almost anything to make air spaces and prevent heating.

Alfalfa can be grown by anyone who is willing to go to the trouble of starting right. But you must first have a good seed bed, good drainage, sweet soil, inoculation, and seed that will germinate. Providing just a few of these conditions is not enough; you must have them all to be sure of success. Occasionally one hears such remarks as: "Will Smith didn't inoculate his seed, and his alfalfa grew all right, and he has the nodules on the roots to prove it. I don't think your theory is any good."

Such cases are common, the nodules coming from the nitrogen in the soil, and the second year such an alfalfa field will turn yellow. But if the plants get nitrogen from the air, by inoculation, they will store it in the roots, thus continually enriching the soil.



When a field is well established it will yield three good cuttings, and sometimes more if the growing season is long. But clipping too late in the fall will reduce next season's crops

Good Culture is Important

I ASKED for information, and he sent me a blueprint plan. Hundreds of home-made scarifiers have been made for from \$4 to \$5 apiece. Naturally you would think the seedsmen would have scarified seed to sell, but they have not taken to the idea very eagerly. Already they have to clean the tons and tons of seed they handle, and putting it through a scarifier would mean a tremendous lot of bother.

Professor Hughes reports the germination of scarified alfalfa seed to be more than double that of untreated seed.

There is still another way to treat alfalfa seed which I have found simple and convenient, as it saves the trouble of making a scarifier. I know it is a good thing because I have seen the difference on my own farm between treated and untreated seed. This plan I am about to describe has been used for years by florists for other kinds of seed, but it works admirably with alfalfa seed.

Take a couple of bushels of fine, sharp, moist sand, put it in a hotbed, and spread it out smoothly. Then

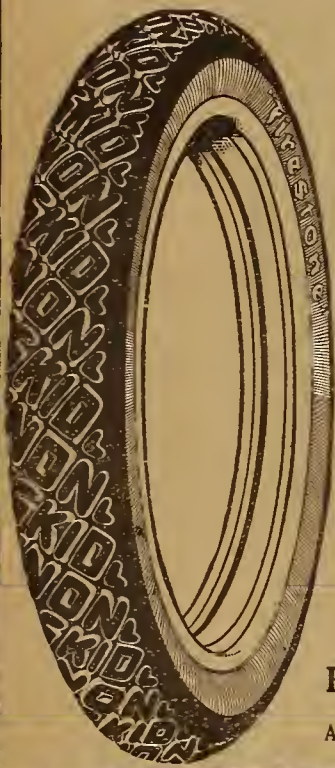
by a blast of air against a curved piece of sandpaper that scratches the outer hull of the seed and causes it to germinate more quickly.



Lime is a soil sweetener that is good for most any crop, but for alfalfa especially. It may be applied by a special lime spreader, as shown here, or you can scatter it from a wagon

"Follow Your Leader"

When you realize that this Firestone Non-Skid is a national landmark, you will trust it—on any road, rain or shine, the whole year 'round. The Non-Skid lettering grips any grade and means safety and saving. Toughest possible rubber is piled high in the center where the wear comes.



Firestone Non-Skid Tires

carry a name—the name of the founder of the business and its present head. This organization is composed of specialists who make nothing but tires. This intensified ability in production and distribution explains why, with Firestones, you enjoy safety, easy riding and Most Miles per Dollar.

Free Offer—A Firestone Waterproof Tube Bag Free for your dealer's name, and the make of your tires. Ask also for pamphlet, "Way to More Mileage," No. 45.

Firestone Tire and Rubber Co.
"America's Largest Exclusive Tire and Rim Makers"
Akron, Ohio Branches and Dealers Everywhere

Heavy Mail at Hickory, N. C.



International Harvester Cream Separators Lily—Primrose

DO you realize the great interest there is in modern, profit-building dairy methods just now? At a big Farmers' Union Meeting, comprising 18 counties in North Carolina, 20 of our booklets, "Facts and Figures on Dairying," were passed through the crowd from man to man. Those desiring copies were asked to write to the Catawba Creamery, Hickory, North Carolina.

In 25 days, 462 requests for booklets were received.

Farmers are realizing that three cows with a good cream separator are as profitable as four without one. A good separator is one that gets all the cream down to one drop in each gallon of skim milk. That's efficiency—and that's the reason for the popularity of International Harvester separators, Lily and Primrose.

Lily and Primrose separators skim to this fine standard for years, because they are built on a sane design, strong, simple, reliable, sanitary. The few easy adjustments necessary, anyone can make. The single automatic oiling arrangement takes care of every bearing and sidesteps trouble.

"Facts and Figures on Dairying" will help you, too. Write for it and for a catalogue. See the I H C dealer who can furnish you with a Lily or a Primrose separator.

International Harvester Company of America

(Incorporated)

CHICAGO

USA

Champion Deering McCormick Milwaukee Osborne Plano

Interest Rates

Hollis Bill Involves Farm Mortgage Returns

By JUDSON C. WELLIVER



WASHINGTON, D. C.,
June 5, 1916.

THERE is going to be a lot of trouble over the Hollis bill for establishment of a rural credit system "to provide capital for agricultural development, to create a standard form of investment based upon farm mortgages, to equalize rates of interest on farm loans," etc. The measure has passed the Senate, and at the time of writing the opposition to it is getting exceedingly busy.

There is just one thing about this measure that pretty nearly everybody agrees is good. That is its title: Rural Credit. It's hard to get anybody to vote against even an undesirable measure with that title and pretending to contemplate a great benefit to the farmers. The folks in the cities assume that it will make farm production larger and thus reduce living costs. The farmers presume that if it works it will give them cheaper money and wider credit. So there is difficulty in its getting such insistent examination as might defeat the bill; nobody wants to vote against a measure that has so much plausible demagoguery in its title.

As it has passed the Senate it provides for a farm-loan board at Washington to manage the system, twelve federal land banks, and, subsidiary to these, an indefinite number of farm-loan association and joint-stock land banks. The Government will provide the \$500,000 minimum capital for each federal land bank, and if there is need shall add as much more each year.

Ten or more farmers may form themselves into a co-operative farm-loan association and borrow from the federal land bank in their district up to half the value of their farms, on mortgages. These mortgages will be held by the federal land bank as collateral security underlying bonds to be issued by the Farm Loan Board. Thus it is simply the old scheme of debenture bonds against deposited collaterals. The money for which the bonds sell would come back to the federal land bank to be loaned on other mortgages, which in turn would be made collateral to more bonds, to be sold to the general investing public; and thus an endless chain of cash and credit would be created, its operations limited only by the desire of farmers to borrow and the willingness of investors to buy.

It is thought that three to five billions of dollars' worth of farm mortgages, now paying from five to ten per cent, and even more, would be offered by farmers for refund at probably four per cent under the new scheme. But this assumption involves confidence that the investing public would consent to have its five, six, and eight per cent paper taken away from it and four per cent paper given back to it. Would the investors do it?

Four per cent investments are not very enthusiastically snapped up nowadays, when even the joint bonds of the British and French nations draw more than that. Of course the original government contribution of capital would soon go out, and if after that the general public didn't buy the bonds promptly there would be no more cash to be dragged in by the endless chain.

Who'll Loan at Four Per Cent?

Meanwhile, general investors in farm loans would be justified in worrying about the future of that business; fearful that investments made with the expectation of running a long period might be taken up shortly with the cheaper land-bank funds. The last state under this scheme might be worse than the first. The real question is whether there is any great supply of four per cent money in the country; whether there is likely to be any considerable supply of it in the world for a good many years after the war. The whole world is going to want capital to get back on its feet.

The other side of the proposition is that, with all the world bidding high rates for money, this federal project might, by putting at least the color of government security back of farm loans, stabilize the market for them, keep the interest rates from rising still higher

Mr. John Smith,
Farmville,
U. S. A.

than they are now, and do a useful service to the farmer. The time may come when six per cent money will look positively cheap even to the

Middle Western farmer who has been used to borrowing at five

The disappointing thing about this legislation is that it doesn't recognize the need for any but mortgage loans. The country is full of farmers who haven't any land to mortgage but who need money for investment in a thousand things to make their farming more efficient.

Present Plan Favors Landlord

The advanced students of this problem believed, when rural credit legislation was proposed, that some adaptation of the co-operative personal credit and loan associations, such as they have in Europe, would be worked out. It has not been done. How would the tenant farmer be helped by a system that would enable the landlord to get more and cheaper money, and thus farther expand his holdings? Would not the tendency be to increase large holdings and decrease the tenant farmer's chance of becoming an owner? Until he could get something to mortgage the tenant farmer couldn't get at any of the cheap money; and he's the fellow who most of all needs better credit, cheaper capital.

These and other difficulties have been discussed by men of wide experience, like Myron T. Herrick and others. The discussion seems likely not to defeat the legislation now in hand, but it does give promise of forcing further legislation, later, to provide the distinctively personal credit that is needed by the small and tenant farmers.

Another important financial question is that of foreign competition after peace returns to Europe.

It looks as if, after peace returns to Europe, the American farmer would have a greater competitor than ever before, in Russia and Siberia. The representatives of the entente allies have been holding conferences in Paris, planning a great and close co-operation for the purpose of keeping business among themselves, and preventing Germany in regaining power to make another big war.

In effect, this plan is to establish mutually discriminating tariffs, financial arrangements, money systems, etc., in order to make it advantageous to do their business with one another. Thus Russia is going to quit spending money buying things in Germany, because she doesn't want Germany to save it up to start a new war after a while.

Germany has been making most of the agricultural machinery for Russia. Russian farming is pretty bad—partly because the agricultural machinery adapted to German uses isn't the thing needed in Russia.

Now, when the Russians get American cultivators and self-binders and gang plows and the like, they're going to be some competition in agriculture. Uncle Sam will be making profits—for his manufacturers—from selling the machinery, but he will be rubbing it into his farmers a bit.

Atop all this the great scheme of industrial and commercial co-operation among the allies looks to a tariff scheme that will, if it works out, ultimately give the other manufacturing countries among the allies a preference in Russian markets, so that England, for instance, will have the better chance to sell Russia her agricultural implements. If it ever comes to that we are going to be a good deal isolated commercially, and there will be need for measures to protect ourselves effectively. That's the reason why there is a great revival of sentiment in favor of a tariff commission.

Nowadays you hear endless talk here in Washington about a tariff commission endowed with real powers—powers not merely to investigate and report so that Congress may fix duties intelligently, but powers actually to fix the duties and to change them when necessary. Even the Democrats, who started with determined opposition to a commission, are coming around to it, and the President has strongly urged it.



Henequen fiber is here undergoing the drying and natural bleaching process which changes its color from green to the familiar whitish-yellow



The cargoes of these barges are henequen bales ready for shipment to the United States. This picture shows the harbor of Progreso, Mexico

VERY few people, indeed, are acquainted with the story and romance of the ordinary binder twine that is so extensively used by farmers in the United States. Still smaller, perhaps, is the number of people who know anything at all about henequen, or sisal hemp, from which binder twine is manufactured; and yet a most remarkable tale could be told about that wondrous plant.

In Yucatan, Mexico, where henequen grows and whence nearly all the sisal hemp used in this country comes from, the natives call it "the noblest plant in the world." Others have dignified it by the title of the "Green Gold of Yucatan." Those are the feelings of the Yucatecans, as they are called, for the henequen plant.

The most important of the numerous fiber plants in Mexico is the *Agave sisalana*, which produces the sisal hemp from which our twine is manufactured. That plant is the basis of the prosperity of the State of Yucatan, and represents one of the chief values in the list of Mexico's agricultural productions.

Scientifically the plant belongs to the maguey (agave) family. The ancient Aztec Indians used the plant very extensively. They employed the leaves for roofing, the fiber of it for weaving, the pulp as a food, and the juice as a beverage. The henequen plant played an important part in the history of the Aztec Indians, as their ruins indicate.

The henequen plant resembles very closely the century plant of the United States. The arid and stony regions of Yucatan afford the most suitable soil and climate for the plant. Other cultivation there is almost impossible. The plants are produced from seeds, cuttings, and from sprouts which the natives call *hijos* (children).

Requires Little Cultivation

AFTER a field has been cut of all the henequen plants the surface is burned. Three months or so before the rainy season the *hijos*, which are usually about 18 to 20 inches high and which have sprouted from the parent plant, are rooted up and thrown into a heap, where they lie exposed to the weather. When they appear to be almost dried or decayed they are gathered, and carried to the cleared field ready to be planted.

Usually they are planted in rows about four yards

apart, each plant removed about seven feet from its brother. About 1,100 plants are generally placed to the acre. The space between the rows are for the purpose of facilitating the cutting and carrying off the plants, also to prevent the wounding of the leaves by the spines and thorns of adjacent plants.

This remarkable plant needs practically no irrigation or cultivation of any sort. But twice a year the fields have to be cleared of the weeds, and a great

deal of patience is required before the plant reaches maturity. Under favorable weather conditions it takes six or seven years before the plant is ready to be cut and begins to yield fiber. The plant grows in the form of a sharp, conical spike which springs from the center. Soon it is encircled by successive rings of long, sword-like leaves which radiate from it. A mature plant will bear from 6 to 8 rings, and will contain from 10 to 15 radiating leaves. The cutting of the leaves is almost continuous, however, the older the leaf the stronger and the better the fiber is. The lower or older rings are cut every year. The yield of fiber is largely influenced, however, by the weather conditions.

There is no fixed harvesting season, as this is determined by the individual degree of maturity of the plant, which in turn is indicated by the position of the leaves on the stalk.

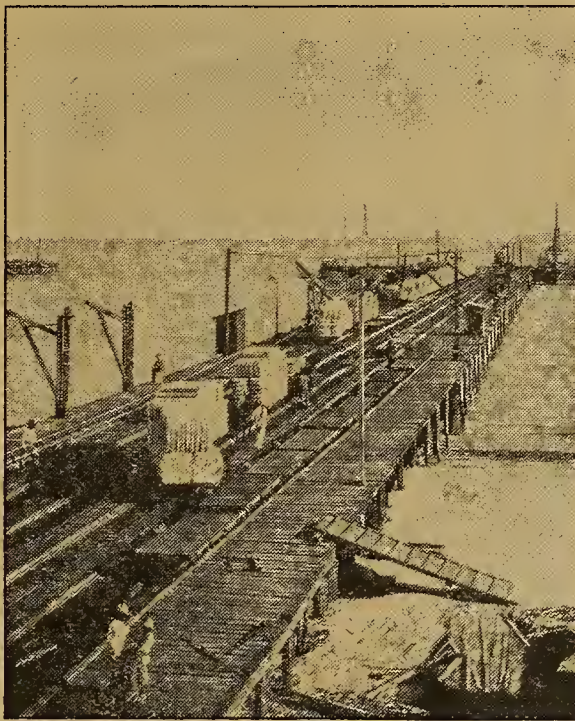
The average productive life of a plant is about fifteen years. Replanting is not required more than every fifteen or twenty years.

They Raise No Other Crops

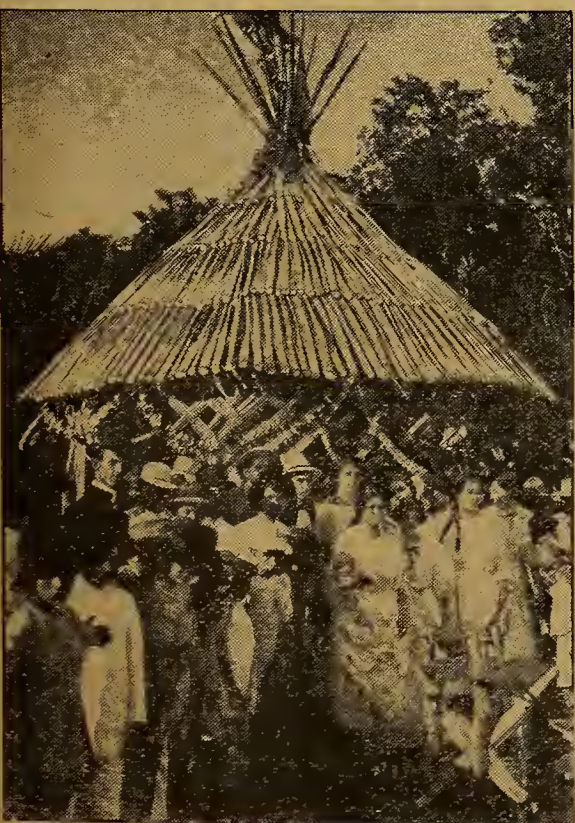
THE leaves are cut with a *cerba*, a hook with a cutting edge. To this instrument an ingenious device is attached which cuts off the side spines without injuring the fiber. The leaves are subsequently cleaned by a machine consisting of a large disk furnished with knives revolving about a plane table. The thick, pulpy henequen leaves are inserted between the table and disk; the pulp is removed and the fiber is left. The fiber is then left in the sun to dry, undergoing at the same time a natural bleaching process, changing from a bright green to the well-known whitish-yellow color. When the pulp has dried thoroughly it is pressed into bales weighing about 500 pounds and is ready for shipment.

Everything the Yucatecans possess comes from but one thing—henequen. Raising that wonderful plant is practically the only industry of the state. The soil is unsuitable for any other crop. All other products in the form of vegetables, fruits, and foodstuffs have to be imported from the outside. Seven eighths of the total exports of Yucatan is henequen, and three fourths of its people earn their living from it.

At present Yucatan annually ships more than a million bales of henequen to the United States.



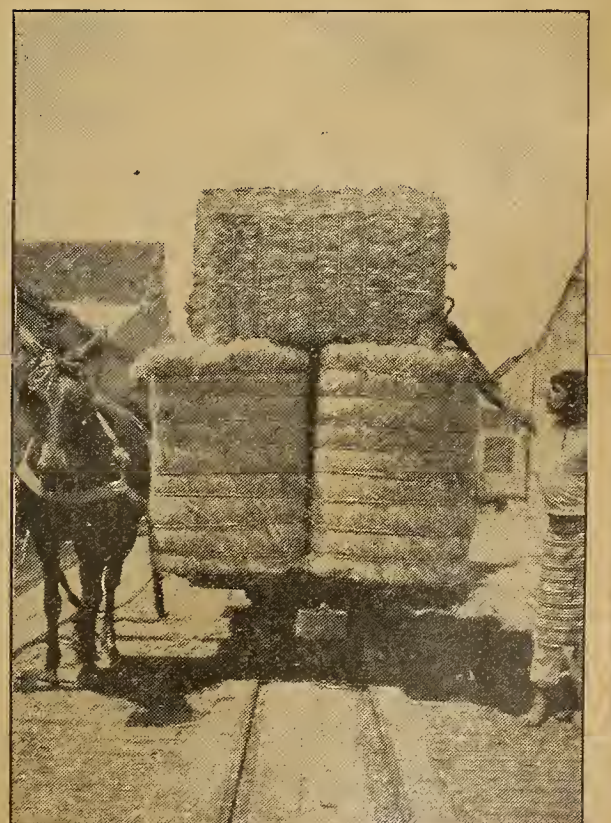
Seven eighths of Yucatan's exports is henequen. You see it everywhere



Here the henequen workers are holding a little celebration. They are fond of pleasure



The "Green Gold of Yucatan." Binder-twine fiber is made from the leaves



An Indian loading a train with henequen. The bales weigh about 500 pounds each

FARM and FIRESIDE

THE NATIONAL FARM PAPER

Published Twice a Month by
The Crowell Publishing Company
Springfield, Ohio

Branch Offices: 381 Fourth Avenue, New York City;
Tribune Building, Chicago.

Entered at the Post-Office at Springfield, Ohio, as Second-Class Mail Matter.

Subscription Price

One year (24 numbers), fifty cents. Three years, one dollar. Extra postage for Canada, twenty-five cents a year.

About Advertising

Farm and Fireside guarantees that its advertisers are responsible and honest people, and that its subscribers will receive fair and square treatment.

Advertising rates and regulations furnished upon request.

June 17, 1916

James J. Hill

JAMES J. HILL, railroad builder and patron of agriculture throughout the Northwest, died at his home in St. Paul, Minnesota, May 29th, at the age of seventy-four. Death came as the result of hemorrhoidal infection, and in spite of the most expert medical service and special sedatives brought from Chicago on a special train that shattered previous speed records.

While to the public Mr. Hill was best known as a capitalist and transportation man with unusual vision, he was keenly interested in agriculture for its own sake. His opinions on crops, conservation, timber, water power, and irrigation were constantly sought by men in authority at Washington, for his knowledge was from wide personal observation.

For the last few years he has been deeply interested in the development of milking strains of beef cattle, particularly the Red Polls and the Shorthorns. Much of his foundation stock was imported, but the development of the desired strains was continued on his own farm near St. Paul.

Thus Mr. Hill has constantly endeavored to build not only for his own gratification but for the future benefit of his fellow men.

The Great Book

THE American Bible Society held celebrations of its centennial anniversary the other day. The society is absolutely non-sectarian, devoted to putting the Scriptures into the languages, the hands, and the heads of people everywhere. It reports that it has circulated 117,121,053 bibles, of which 71,500,000 have been placed in North America and 45,500,000 in other lands. Here is a philanthropy that nobody can possibly criticize. Its object is to promote knowledge of the greatest religious classic of all time, which happens also to be the finest example of English literature.

If there were no other testimony to the inspired character of the Bible, it would be secure in its place as the Great Book, by the fact that wherever it has been translated it has become a model of literature and of form.

Shall Cats be Licensed?

IN MANY parts of the county, particularly in the vicinity of towns and cities, the stray-cat pest has come to be a serious menace to the bird population. In one locality in North Dakota, birds of 107 species have been found killed by cats. The birds killed in greatest numbers by cats were robins, song sparrows, bobwhites, ruffed grouse, catbirds, and English sparrows.

Stray cats, and even well-fed house cats, often get so expert in stalking the parent birds and finding the nests of young birds that one house cat has been known to kill and bring to the house an average of over a bird daily during the entire nesting season. From this it is easy to understand why the bird population is so small in neighborhoods

where scores of cats are killing the parent birds and raiding the nests constantly throughout the breeding season. There seems to be good reason to believe that it will become necessary to have all cats licensed and constantly wear collar and tag the same as dogs, and require all untagged cats to be destroyed. This may be the only way to save the birds.

How Big Business Worries

CURIOUS things happen in the world of big business. Some time ago the financial district of New York had a "peace scare." There were persistent reports from Europe that the belligerents were secretly opening negotiations looking to ending the war, and promptly a lot of stocks, especially in concerns that have been making war materials and profits, tumbled in price.

The rumors proved groundless; prices firmed up again, and then came along a "war scare"—worry about the possibility that the United States would presently be drawn into the war. It would seem natural that concerns making war supplies would expect bigger business and more profits if this country should begin piling up its orders on top of the European demands. But the "war brides" stocks didn't see it that way—they promptly got scared over the possibility of more war, and the same war stocks tumbled again.

It's hard to please these market operators. If the farmers of the South had got half that panicky over cotton in the last months of 1914, there wouldn't have been a bale in the country to-day. The farmer may be regarded by the stock operators as a lamb, but he knows enough to keep his head with him when the wise gentlemen of the Exchange lose all their bearings.

A Poultry Scientist

JUST why one hen is a loafer and another as like her as two peas in a pod is a good layer has always been a poser to poultrymen.

Raymond Pearl has spent nine years delving into this mystery. Look the world over and no one can be found who has investigated this matter quite so carefully in a scientific way as he has done at the Maine Experiment Station. He now is fully convinced that it is possible for a poultry keeper to control the egg-production quality in his hens by breeding, and thus insure heavy egg production in a large proportion of the pullets hatched. Pearl's work has not been mere scientific theory. He has bred, hatched, raised, and tested thousands of birds with which to demonstrate his opinions.

His discovery, reduced to its lowest terms, is that the quality of heavy egg production descends to the pullet through her father, and that, in order to insure a large proportion of the pullets hatched being heavy layers, their father must be the son of a heavy layer



and his mother likewise must be descended from an ancestry of heavy layers and not merely be a sport. A late straw indicating what he is doing in securing heavy egg producers is a Barred Rock that laid 298 eggs in a year.

Drainage Reasoning

WHAT'S a farmer's time worth? We nearly always rate it at a low figure—seldom over 25 cents an hour. But even at that low estimate the value of time counts up enormously in the course of years.

For instance, tile drains are considered expensive and open ditches cheap. Is that conclusion correct? Tile costs from 30 cents a rod upward, depending on its size; but once laid it is there for good—twenty years anyhow if put in right. Your open ditch takes longer to dig than a ditch for a tile drain. You must keep it clean; you lose the use of the land it occupies; you must either make culverts over it at various points or take the chance of breaking harness or machinery about every so often.

Roadside ditches, beds of streams, and other natural waterways are in any case the ultimate outlets of drain-tile systems, but they are usually plentiful enough without additional open drains. More tile drains without an increase in the number of open ditches seems to be the best means of draining improved farm land.

Silver Prices Go Up

AFEW months ago the United States Mint bought a big lot of silver bullion at 48½ cents the ounce. That purchase came at a time when silver mines were threatening to shut down because of the low price. They couldn't earn a living.

Right afterward the price of silver began to go up. It touched 73 cents an ounce a day or two before this writing, at which point Uncle Sam had made a profit of about a million and a half of dollars on his one purchase.

The war has set the Old World Governments forcing out other forms of money in place of gold, which they are hoarding. Silver, being universally familiar, and being "hard money," looks good as a substitute, so there must be an increase in its mintage. The British Empire and the United States produce most of the world's gold; the United States and Mexico most of the silver. Any way you turn, the United States of America is there.

Our Letter Box

The Country Agent Banker

DEAR EDITOR: You will probably be interested to know that a most interesting innovation in the banking world has recently been developed at Stillwater, Minnesota, where the First National Bank has undertaken to put farmers on the same borrowing basis as their town customers for both short and long time loans.

In order to play the new move safe and fair, the bank has employed Glen E. Rogers in the capacity of expert farm examiner and adviser. Mr. Rogers has been serving the county (Washington) for two years as county agent, and has the full confidence of the community.

In his new capacity Mr. Rogers visits farmers who wish to make loans, and acts as industrial counselor to both those making loans and those who are shaping their operations toward a larger capitalization.

HARRY MONTGOMERY, Minnesota.

In a New Settlement

DEAR EDITOR: I live in Wisconsin in a very new settlement about 160 miles north of Milwaukee. Until recently this part of our county has had but little acquaintance with man, except the woodsman with his ax and the hunter with his gun.

But now the land companies have laid it out into farms, and are bringing in people from other States—Indiana, Illinois, Ohio, Iowa, Texas, Kansas, Nebraska, and Oklahoma—to make their homes here, and a very good class of people they are, too.

This is a fine dairy country, and land is cheap. It is easy to raise clover. All along the logging roads where the lumberman has hauled hay for his horses the seed has fallen by the wayside, it sprung up and, like the seed of the "sower who went forth to sow," they have "brought forth an hundredfold."

Clover does not winter-kill here as it does in many other States.

The wild grass is very nourishing and grows rank and green all summer. The cattle fatten well on it. Some farmers bought up stock sheep at the stockyards that were thin in flesh, brought them here, and turned them out on the wild pasture for the summer. In the fall they were nicely fattened, ready to ship to the Chicago market—and no expense for feed to the farmers, who had "killed two birds with one stone." The sheep had cleaned up the brush on the wild land and filled the farmer's pocketbook.

Last summer we fenced in a pasture of native grass and put our six milch cows in it, and they cost us not a cent from May 1st till November 1st, and brought a good profit in cream.

We ship our cream and get a good price for it. There are creameries and cheese factories going up all over Marinette County. There are associations formed to help the farmers get good cows on easy payments, so the sale of the cream will pay for the cow, and the farmer has the increase of the herd.

Clover, alsike, sweet clover, and alfalfa, also timothy and other grasses, grow exceedingly well here. Soy beans, field peas, rye, wheat, oats, millet, barley, hemp, and vetch make fine yields. Corn is sure to ripen sufficiently for silage, and silos are being built at almost every dairy farm.

We are all striving for better things all along farming lines. Our social life is good and none of us is fearful of going insane from loneliness.

I am a plain farmer's wife and I milk cows, raise chickens, take care of the garden, teach a Sunday-school class, and do my own housework.

Farm life is very interesting to me, and I love it all—the downy chicks, the little calves and colts, the sprouting grain, and the golden harvest. I don't like the hawk that steals my chickens, but soon he too will have to go; and life might be too perfect without him.

LUCY LINDSAY FERGUSON, Wisconsin.

Uses for Charcoal

DEAR EDITOR: I find that charcoal mixed with manure will absorb ammonia gas and retain it for fertilizing uses. Charcoal placed around the roots of trees, especially in heavy clay soil, helps to retain moisture in dry weather and assists in drainage in wet seasons.

When used in gardens, charcoal seems to protect vegetables and flowers against fungous attacks. Pulverized charcoal gives best results for these purposes. WILLIAM BALL, Nebraska.

Putty Pointers

DEAR EDITOR: One of FARM AND FIRESIDE's readers asks what makes putty fall out of windows. He says the putty was soft and sticky when applied, now it is crumbly and loose.

The falling out of the putty was due to the absorption (by the wood) of the oil in the putty. Always paint the rabbets of windows before setting glass and the wood will not absorb the oil in the putty. There is also a difference in the grades of putty and the method of working it. When it becomes hard, some workmen soften it with any oil handy. Use a pure linseed-oil putty and keep it soft with linseed oil. Then your putty troubles will end.

FRANK DAYTON, California.

Copper or Bronze Screen

DEAR EDITOR: Allow me to comment on the article in a recent issue, entitled "Swatting the Fly," in which bronze screening was endorsed. Recent experiments and tests have shown that copper screening is better than bronze. For some years there has been an increasing demand for a wire cloth more durable than that made of steel wire painted or galvanized. Hence the production of so-called bronze has been greater each successive season. This is not real bronze, however, since bronze is an alloy of copper and tin. Bronze screening consists of copper and from 10 to 20 per cent of zinc.

Numerous tests have been made of copper and its alloys, which show conclusively that copper, if treated scientifically, is suitable for making a better fabric than copper-zinc bronze. Just as pure iron resists corrosion better than steel, so pure copper makes a more durable screen than its commercial alloys.

N. J. W., New Jersey.

Couldn't Do Without It

DEAR EDITOR: We thought we wouldn't take the paper any longer, but we had to send for it again.

MRS. G. C., Michigan.

Better Than Breakfast

DEAR EDITOR: I would rather go without my breakfast than my FARM AND FIRESIDE. Hoping everything will prosper for us,

MRS. M. J., Colorado.

EW

Good Health Talks

By DR. DAVID E. SPAHR



GREEN soap is prepared from potassa and fixed oils. Tincture of green soap, the preparation usually used and referred to, is an alcoholic solution of green soap, sixty-five per cent, and oil of lavender, two per cent. This preparation is used as a local application to the skin as an antiseptic cleansing and cleaning article in preference to comon soaps. It can be obtained from any druggist.

Sore Feet

The bottoms of my feet are so sore it is painful for me to walk, especially on hard ground. The balls of my feet are calloused something like a corn and it extends across to my little toe.
L. P., Oregon.

SOAK your feet in warm water until the callosity loosens up, and then peel it off. Wear some soft inner soles and see to it that the soles of your shoes are not too rough and stiff or too thin and limber.

Effervescing Summer Drinks

How would you make a good effervescing summer drink? I have used bicarbonate of soda with vinegar or lemon juice and a little sugar, but I suppose that phosphate of soda would be better. How about acid phosphate? I have heard that recommended.
T. A. H., Minnesota.

YOU have answered your own question. Mineral waters containing carbonic-acid gas sufficient to make them sourish make a cooling, palatable drink in feverish and dyspeptic conditions. For home use, your preparation is probably as good as any.

For Dandruff

Miss J. L. W. of Texas and Mrs. F. R. of South Dakota ask for a remedy for dandruff.

AUTHORS on skin diseases recommend the following: Resorcin, 2½ drams; hydrarg. bichlorid, 2 grains; ol. amygdal. dulc., 2 drams; tinct. cantharid, 2 drams; spts. vin. rect., 2 ounces; aqua distill., q. s. ad. 6 f. ounces. This is to be rubbed into the scalp daily.

Bright's Disease

My husband is forty-two years old, a carpenter by trade, and has kidney trouble very badly. Has pains and dizzy spells, also blind spells, and agonizing pains about his heart. After one of these spells he is not quite right in his mind.
Mrs. I. C. W., Texas.

AQUIET life in an equable climate and a plain mixed diet, avoiding meats and salt as much as possible, is the best thing.

For his dyspepsia, insomnia, and cardiac pain he needs the personal attention of a physician. The medicines required for such a case as his can only be administered under a physician's supervision.

Lumbago

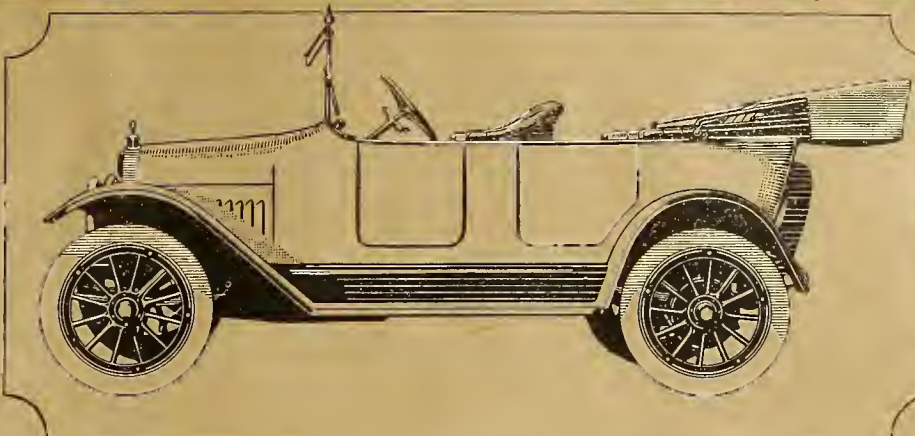
I am fifty-four years old and a farmer, and am otherwise healthy, but my kidneys pain me so when stooping, and have for five years.
A. D. M., Washington.

KIDNEY trouble hardly ever causes a pain in the back, especially as you do not speak of other symptoms. No doubt you have sprained your back. Perhaps you have lumbago.

Impacted Cerumen

About two months ago I began to have dizzy spells when I would lie down on my left side, everything would whirl around, and I felt as if I were falling on my head, then when I would sit up I would be sick at my stomach. It seems as if something passes from one side of my head to the other. It soon gets better, until I turn over, and then it begins again. This, however, does not occur if I lie down on my right side.
Mrs. E. L., Texas.

HAVE your doctor remove the hardened wax from your ears, especially the right one, and if that is the cause you will be relieved at once. If not, it may be chronic catarrh or Ménière's disease.



The World's Champion Endurance Car

Reputation

"What Car Shall I Buy?"

LET us give you a suggestion. Buy the car that has the best reputation for service in your city or town or county. You should see that for your investment you secure—not merely a motor car—but motoring. We are less anxious to make you a Maxwell owner than to make you and keep you a satisfied motorist.

By service we do not mean merely the serviceability of the car you buy—the soundness of design, the excellence of materials and workmanship, the sturdiness and willingness and dependability of the car. True, these are vastly important things.

But still more important is the Company back of the car. Still more important are the company's local representatives who sell you the car and whom the company must hold responsible to fulfill its just obligations and keep its pledge with you.

Buy the car, then, which embodies Character as well as Reputation. For reputation is what people think of you, while character is what you really are.

Buy that car which carries with it an actual guarantee of continuous, care-free, economical motoring. In fact, select your company before you select your car. Buy motoring.

And in just so far as The Maxwell Motor Company, after you have made such an investigation, comes up to these standards and survives these tests, we shall urge you to buy a Maxwell Motor Car.

Brief Specifications—Four cylinder motor; cone clutch running in oil; unit transmission (3 speeds) bolted to engine, ¾ floating rear axle; left-hand steering, center control; 56" tread, 103" wheelbase; 30 x 3½" tires; weight 1,960 pounds. **Equipment**—Electric Head-lights (with dimmer) and tail-light; storage battery; electric horn; one-man mohair top with envelope and quick-adjustable storm curtains; clear vision, double-ventilating windshield; speedometer; spare tire carrier; demountable rims; pump, jack, wrenches and tools. **Service**—16 complete service stations, 54 district branches, over 2,500 dealers and agents—so arranged and organized that service can be secured anywhere within 12 hours. **Prices**—2-Passenger Roadster, \$635; 5-Passenger Touring Car, \$655. Three other body styles.

Maxwell
Motor Company • Detroit, Mich.



Send to Department No. 8 for our new booklet
"The Maxwell and the Family"



Chick Care in Summer

By Vincent Lee

A FELLOW needs to be pretty watchful just about now, lest his chick losses take the heart right out of his season's work. Heat may work havoc; so may insect pests. It is discouraging to get a nice lot of the little chaps well on the way and then have some disease strike them and wipe out the biggest share of them in less time than it would take to say "Jack Robinson."

So it pays to look out before the evil day comes. Two or three things help in this line. Where the runs have been on the same spot a good many years it is a good thing to plow it up. That not only furnishes the birds needed exercise and a great deal of feed in the form of bugs, worms, and other game, but it also lessens the likelihood of diseases getting in. There is something healthful about the smell of the freshly turned earth.

And then the feed given needs to be watched carefully in hot weather. We often get in too big a hurry to make the birds grow. In hot weather, as well as in cool, we are tempted to give heavier food than can be digested. First we know, a lot of the birds are off their feed and we lose more than we gain. That is one reason why I like home-prepared feed. Most of the mixtures we buy are all right when they start from the factory, but we do not always know just what they contain, nor how long they may have been on the way. If we do our own grinding and mixing we will be more sure of favorable results. Many a fine bird has turned up its toes because of too hearty food in hot weather.

Still again, every dish that is used to feed or water the chicks must be kept just as clean as can be, and the water or milk fed must be pure, fresh, and wholesome. With pure drink, some light, easily digested feed, and what newly cut grass and vegetables they will take I am not very greatly afraid of disease, provided of course the housing and other care are right.

A Connecticut Leghorn

By B. F. W. Thorpe

THIS White Leghorn hen represents the type developed by a Connecticut poultryman, Frederick M. Peasley, by line-breeding for heavy egg production without regard to exhibition points. This hen made a record of 252 eggs in the First Connecticut Egg-Laying Contest. In 1914 a pen of Mr. Peasley's hens of the same breeding outlaid all



American-bred Leghorns. Mr. Peasley says in regard to his breeding practices: "What I have accomplished has been by line-breeding, and my present flock is far in advance of my original stock. At the present time I have a pen of 100 pullets which produced 58 eggs the last day of November, 1915, and have laid almost without interruption since."

Limber Neck

LIMBER NECK or wry neck is a deranged condition of the nerves resulting from some form of poisoning. Eating decayed animal or vegetable matter or too much salt often poisons poultry, and results in these nervous ailments.

Striking Egg Vocabulary

SINCE the egg-marketing business has been put on a scientific basis, names to fit every condition of eggs have come into use. Some of these are fancy near-by hennery, strictly fresh, whites, browns, mixed, cracks, seconds, blacks, sour rots, green whites, stuck yolks, musties, blood rings, etc. Eggs that are beyond the eating or bakery stage for any use are used for tanning purposes, and are known as tanners. In the great egg-distributing centers the expert candlers are important personages who can sort the eggs passing before the candling apparatus with a skill and rapidity that is rather amazing to all uninitiated beholders.

In the heaviest egg-producing localities there is a growing interest in establishing plants for egg-freezing and egg-drying to assist in safely marketing eggs in hot weather.

An English Leghorn

HERE is a good example of the White Leghorn hens bred for twenty years by Mr. Tom Barron of England by allowing nature to develop the type best adapted to heavy egg production. Note



the unusual length of body and the indications of extreme vigor in every characteristic.

This particular hen laid 262 eggs in the Second Connecticut Contest. In later American contests Mr. Barron's best laying Leghorns and Wyandottes have both made records of 282 eggs in one year.

One Tom to 15 Hens

KANSAS Station experiments show that 12 to 15 turkey hens can be safely mated to one vigorous tom turkey. If 25 or 30 hens are kept, two toms should not be allowed to run with them at the same time. One should be confined one day and the other the next. Otherwise the males will fight so much as to be of less value as breeders.

Curing Gaping Chicks by Wholesale

By Lydia M. Dunham O'Neil

I HAVE just finished reading Ruth C. Gifford's article, "Save the Gaping Chick." Here is my mother's method by which ten or a dozen chicks may be handled at one time:

The apparatus required is one brick, two peach baskets, and a small quantity of carbolic acid. Place the chicks in one of the baskets, and cover the top with a burlap sack, or almost any kind of cloth of moderately heavy weight.

Heat the brick on top of a stove or in an oven until it is quite hot. Put it in the bottom of the other basket and pour on it a few drops of carbolic acid. Hold the basket containing the chicks over it, letting it drop until it is just a few inches above the brick, but do not let it touch the hot brick. Hold it thus several minutes, though of course not long enough for the chicks to be overcome. The fumes of the carbolic acid are breathed by the chicks, and the result is that every gapeworm is killed.

I can testify to the effectiveness of this remedy, for before using it we lost from 50 to 80 per cent of our chicks with gapes, but after my mother devised this method we did not lose a single chick. It was very seldom necessary to repeat the treatment. By this method a hundred chicks could easily be handled in one day, possibly many more.

Pigeons Spread Cholera

PIGEONS flying from farm to farm frequently carry the germs of hog cholera on their feet, and infect a neighborhood which is then at a loss to understand how the outbreak of cholera came about.

Statistics show that pigeons are responsible for about 20 per cent of the spread of hog cholera, and it is estimated that they caused in this way in 1915 about fifteen million dollars' damage in the United States.

Curd, Sow Bugs, and Pepper

By Mrs. A. B. Clarke

MY TURKEY-RAISING experience in 1915 was quite encouraging. From a hatch of 39 poults I raised 32 birds to maturity. One got out of the coop when small, became chilled and died, and two others got drowned in the watering trough. When it is understood that we live near the Pacific Coast, with plenty of foggy weather, this record does not seem so bad to me.

I credit my success to never allowing the poults while small to leave their board-floor coops and runs until all dew and frost are dried up. I fed but very little rich grain. Their principal meal is milk curd tempered with black pepper, chopped onion, and wheat bran; charcoal and grit always within reach.

For the young poults, before they are old enough to go out on range, I collect sow bugs from under damp sacks spread on the ground and feed them once a day.

If bowel trouble threatens in the fall I shut my turkeys up and feed plenty of dry milk curd dusted with black pepper and charcoal. This treatment has saved me a lot of turkeys.

Big Combs and High Tails

By W. Z. Olmstead

EVER since the Leghorns and Wyandottes of English breeding began carrying off the lion's share in the American egg-laying contests, there has been much discussion of the question as to the purity of the blood of these English-bred hens. Insistent claims have been made by American breeders that the English Leghorns carry a strain of some larger, coarser breed—perhaps a mixture of Wyandotte or Minorca blood. And the English Wyandotte hens have also been charged with carrying White Leghorn blood.

The English breeders who have won so many honors in the laying contests have not been seriously disturbed by their American critics. Barron, the best-known of English poultry breeders, explains that both his Leghorns and White Wyandottes carry nothing but pure blood. He says his birds have virtually worked out their own type. All that he has done is steadily to select for greatest vigor and best laying quality as the basis of his selection to develop great races of layers. He has left Nature to do as she would in developing body shape, feathering, high or low carriage of tail, and large or small combs.

Anyone who has followed breeding for heavy egg production, and the exceptional vigor which must go with this quality, soon finds that he cannot long keep the tails of his birds from becoming upright in carriage, and when thus bred the combs will develop much too large to conform to standard requirements. As he continues to breed for vigor and heavy laying these changes come inevitably. This holds true with all breeds to a greater or less extent.

Must we not conclude, therefore, that the fanciers who advocate breeding to secure standard points in carriage of tail and size of comb are working against the best interests of the poultry industry in America?

Makeshift Roof Hints

By C. M. Eppard

WHERE injury has occurred to a poultry-house roof covered with composition commercial roofing, bad leaks can be repaired by using ordinary coal tar and heavy building paper. First paint the injured roof with a thick coat of tar, then apply a layer of paper, then another coat of tar, and so on until several such layers have been made. Tack each layer of paper before applying the tar. A roof repaired in this way will give years of additional service and, in fact, such a roof made entirely by this plan will answer the purpose for several years for a cheap poultry structure.

AN OTHERWISE perfect ration with green feed lacking will result in ailing, poorly developed chicks.

LEG weakness results from lack of bone-making feed and insufficient exercise. Provide growing chicks with oats, bran, lime, and granulated dried bone.

A SUPPLY of finely ground charcoal is good health insurance for poultry. A handful of charcoal to each gallon of mash will prevent many a bad case of indigestion which is the forerunner of the various liver troubles that annually carry off many a promising chick.



Keep the Berries Moving

By John Coleman

IN MANY sections of our country raspberries have been under a cloud for several years. Insect enemies and fungous diseases discourage many who formerly always grew enough of these luscious berries for home use and a few to spare. Small and large sprayers have been so perfected and remedies are so much better understood, berry culture is again coming into its own.

One of the main secrets in the successful growing of raspberries is to rotate your berry plot from one place to another about every three or four years. For that matter it pays to change all the garden-truck crops from place to place. By having the garden plot contain from one-half acre to an acre, the various small fruits, vegetables, sweet corn, etc., can be changed at will without much difficulty. It is easy to find plenty of suckers any year that make good root cuttings with which to start new rows of red, purple, or yellow raspberries, and with a little attention given to covering the tips of canes of blackcaps new plants are always obtainable. After letting young berry bushes make a growth for a couple of years, the old plot can be plowed out and the bushes burned. This gets rid of much of the disease contagion.

EXPERIMENTS have shown that dipping cabbage plants before setting in arsenate of lead and water solution, the same as is used for spraying fruit trees, will help prevent cabbage maggots from destroying the roots of the newly set plants.

Good Soys on Poor Land

By Ralph Bashore

WE HAVE a piece of hillside land which has very thin, poor soil. It has never paid to put it out in crops since I can remember. We planted pear trees on this hillside a few years ago and wanted them cultivated, so decided to plant something between the rows to insure the trees' getting cultivated.

Last spring we spread 25 bushels of quicklime per acre on this pear orchard, and then harrowed it in. Soy beans were planted early in June. A corn planter was used for planting the seed four inches apart in the row. The rows were spaced 30 inches apart.

The seed was inoculated before planting with a commercial liquid preparation. We cultivated the soys every week



Soy beans were planted between the pear trees in this orchard

through the growing season, and mowed them when frost threatened with a grass mower, cutting two rows at a time.

We raked the beans on rolls before they were dry, to prevent the leaves from breaking off, and allowed them to cure on the rolls. The yield was 25 bushels per acre from this land that would not have produced a crop of corn or small grain worth cutting.

Feed the Bugs Lead Arsenate

By C. A. Roeder

IT IS really a good thing for fruit growers and truck gardeners that the price of Paris green has advanced so much. Lead arsenate is a better insecticide than Paris green, as it is less likely to burn the foliage of the plants, and it sticks to the leaves better. Thus it is more efficient to use.

Lead arsenate is sold either dry or in the form of a paste. At present it costs about 20 cents a pound in the dry form, and from 9 to 12 cents a pound in the form of paste when bought in considerable quantity. Lead arsenate powder may be mixed either with dust or air-slaked lime in the same proportion as used for Paris green, or mixed with water at the rate of 1½ pounds of lead arsenate to 50 gallons of water. The paste is usually sold in small pails. This is mixed with water at the rate of 3 pounds of the paste to 50 gallons of water.

What'll You Do with 'Em?

By B. F. Warwick

OUR strawberry acreage the country over this year is about 19 per cent greater than in 1915; or, expressed in acres, something over 18,000 acres more area are devoted to this crop. Should this year's additional acreage do well, there will be about nine quarts more of this king of small fruits for every man, woman, and child than in 1915, providing the remainder of the acreage is up to the average production. The natural increased demand for strawberries will take up a part of this increase.

A Doctor Heals Himself

By Allen J. Titus

DR. JOHN C. BRANCH has followed the advice of his friends and turned back to the soil for better health. It was not an easy matter for him to catch an hour here and two hours there to dig and delve at his gardening operations, but he finds the time every day.

At the rear of the Michigan sanatorium where he is employed he got possession of several acres of light, sandy



These thirty strawberries were picked from six hills

soil—land that others had given the go-by for something better. For a very moderate expenditure Dr. Branch soon had a thrifty plot of strawberry plants, grapes, and garden crops. From six hills of Senator Dunlaps he picked the 30 berries seen in the basket.

His practice still holds him, but early risers can find him busy among his fruit and garden crops long before the sun shows his face in the east.

Half a Dollar a Plant

By Mrs. M. R. Heymann

MY BEST success in tomato culture was secured in 1913 when I had ripe tomatoes by July 1st and sold \$100 worth of tomatoes from less than 200 plants. I made a profitable strike by watering my plants by running the water through a pipe from the pump whenever they required it. The plants of nearly all my neighbors were ruined by drought.

My Earliana tomato seed was sown early in my kitchen window. I transplanted the plants into a cold-frame late in April and the tenth of May set them out in the garden. I took care of my plants and a lot of other garden truck all alone, and felt rather proud of my success. Besides the tomatoes I sold, I gave away many bushels.

In 1914 I had about 300 plants and sold \$120 worth of tomatoes. But the season was favorable that year, and more people had tomatoes to sell.

Potatoes Kill Calves

WORD comes from a potato grower that he left some of the treated seed potatoes where his calves got them. Four of his calves ate the potatoes and died. The seed potatoes were treated with corrosive sublimate to prevent scab.



Crops and Soils

Using Soil Fertilizer

By Harry B. Potter

THE difference between 29.9 bushels of corn to the acre and 49.9 bushels on an Iowa experiment field is credited to the difference in method of plowing. The first field was not plowed at all, while the second field was plowed to a depth of nine inches. The first field did receive a good stirring with a spring-tooth harrow.

This result is of value as one thinks of the fertility in the soil that was brought up with the plowing that must have been held back when the soil was simply stirred. But the question of the fertility of the soil does not end with the plowing. In Ohio, where records were kept of the cultivations given corn, it was noted that when the field was cultivated six times two inches deep 92 bushels was the yield. Where the cultivation was four inches deep, the yield was 77 bushels.

Deep cultivation did not do what was expected of it. In some way it prevented proper nourishment of the plants. The cultivator must have damaged some of the corn rootlets, and probably put others out of touch with the soil from which they were gathering food.

The idea of plowing deep and cultivating shallow would seem to be a sound one.

Could Have Saved \$128

By J. S. Underwood

I GET my hay in when convenient, and do not call all hands to sweat blood while the thunder rolls in the west. Once I had eight acres of rye which I cut for hay just as it was in the dough stage. It was still green and would have made nearly two tons to the acre. The day after I got it nicely cocked up it began to rain, and rained steadily for a week. At the end of that time my hay was not worth hauling for bedding, so I let it be and later scattered it and plowed it under.

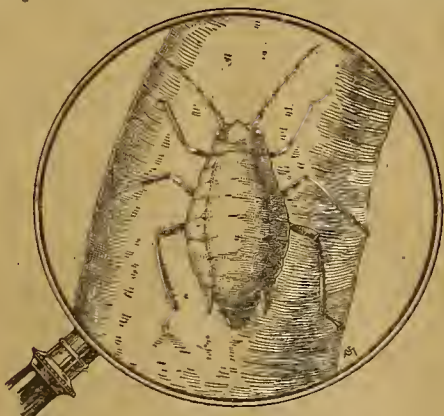
As feed it was worth \$10 a ton, and I counted it a loss of \$160.

One hundred and sixty caps would have saved that \$160, and they would have cost me not over 20 cents apiece, including work of hemming and weighting, or a total cost of \$32. That would have given me a net profit on that transaction of \$128, and I would have had my hay covers left for future crops. I find that when oiled with linseed oil and carefully dried and put away the covers will last for years.

Root-Lice Plague

GOOD corn suffers less from the attacks of the corn-root louse than poor corn. One way, then, to prevent a great loss is to produce the very best growing corn possible. To do this, proper rotation, good cultivation, and plenty of the right kind of fertilizers become very necessary.

Old cornfields must not be put to corn again if the success of the corn-root louse is to be checked, and of course the



Here is a corn-root louse highly magnified

success of the corn depends on the failure of the lice. Plan now to get the corn lands in other crops next year.

The eggs of the lice stay over the winter in the soil. They hatch in April and May and live on the roots of weeds until the corn roots develop. The lice multiply very rapidly, and in May the

forms that come into activity are winged and so transfer themselves from field to field. This, however, is at that late date when corn is able to withstand the activities of the lice. The lice furnish the ants with a liquid from their bodies which the ants lap up with great eagerness. In return the ants carry the lice to the roots of the corn, and thus give them the chance to get their food from the growing corn. It is a case of real co-operation.

To break up this combination nothing can be done as late in the season as June. Early plowing and disking in the spring will keep down the weeds and so hinder the lice, but this preventive method should not be depended upon alone. Use every precaution that changing methods of farming make possible to get rid of the ants and the lice.

The summer offers the opportunity to watch the work of the lice in the cornfields. It may sound like sour grapes when you say it, but it is a good resolution just the same if you will tell yourself: "I am too late to fight this pest this year, but I am willing to take my medicine with a smile now. Next year will see me doing a number of things to prevent damage to my corn crop from these friends—the lice and the ants—that have whipped me this year."



Ants carry the lice to the roots of the corn

Watch Sudan Grass Grow

THE success which Sudan grass attains this year is being watched by men in all States. There is probably no State in which the crop is not grown to a limited extent at least, and in the West and Southwest there are thousands of acres of it.

Along with its growth in popularity for the drier conditions went the reduction in price of seed. Sudan grass was imported in 1909. In 1913 there was quite a little seed on the market, and much of it retailed at \$1 a pound. In 1915 it was possible to get good seed on the retail market for 10 and 12 cents, and much of it wholesaled at 7 cents.

Probably much seed has been used where it was not needed in the farming operations, but about that the present season will tell.

A Pasture Substitute

IN LATE spring and early summer when the pasture is lush and plentiful, there is a disposition to forget the droughty times ahead in July and August. The large dairy farmers are now making sure of plenty of succulent feed in many cases by filling an additional silo with corn or corn and clover or alfalfa, but the small dairyman thinks he can rub along some way with his pasture.

On an average one acre of good soiling crop is the equal of three or four acres of good pasture and five or six acres of short pasture. The average acre of good soiling crop will produce 6 to 10 tons of green feed in a favorable season. The average cow will eat about 50 to 60 pounds of green feed a day. From this it can be reckoned how much acreage of soiling crops will be needed for a given length of time. Besides oats and Canada peas for the earliest cutting, soy beans at the rate of 30 pounds to the acre, broadcasted, and Sudan grass at the rate of 16 to 20 pounds per acre, seeded any time up to the middle of June, will be ready by the middle of August. Some of the small dairymen in the southern section of the corn belt sow soy beans and cowpeas as late as July 1st to be cut late in August and early in September. These dairymen seed a quarter of an acre for every six or eight cows, except the Sudan grass, which does not give quite so much feed. The Sudan grass is seeded at the rate of one third of an acre for six or eight cows.

Prevent Sod-Binding

BLUE-GRASS pastures are benefited by a good disking every three or four years. It prevents sod-binding. It seems, at first, to have spoiled the sod, but that's a hard thing to do with as tough a plant as blue grass. Better still, use a disk drill just as the frost is coming out of the ground, and sow in the sod white clover, sweet clover, alfalfa, or any other seed needed—blue grass if desired. Did you do it this year?

A Sensible

Thing To Do

When the drug, caffeine—the active principle in coffee—shows in headache, nervousness, insomnia, biliousness, jumpy heart, and so on, the sensible thing to do is to quit the coffee.

It's easy, having at hand the delicious pure food-drink

Instant Postum

It is made from wheat roasted with a bit of wholesome molasses and is free from any harmful substance.

Thousands who prefer to protect their health, use Postum with comfort and delight.

Made in the cup—instantly—with hot water. Convenient, nourishing, satisfying.

"There's a Reason"

for

POSTUM

Ornamental Fence

Forty-one inches high at 20c per foot—posts, line railing, silver bronzed ornaments, top braided wire and wire fence filler included. Chick-

en tight—made from heavy, galvanized wire. Corner and gate posts 3 inches—line posts and line rail 2 inches in diameter. Catalog contains 44 designs of beautiful yard fence. Full line of Farm, Walk and Poultry Gates, at extraordinary low prices with a money back guarantee. Get our beautiful free illustrated catalog.

Kokomo Fence Machine Co.
427 North St., Kokomo, Ind.

ASK

our sales office nearest you for prices and terms on fertilizers adapted to your soil and crops.



Send for Booklet—Free
The American Agricultural Chemical Co.

New York, Baltimore, Philadelphia, Buffalo, Cincinnati, Cleveland, Detroit, Boston, etc.

74% Gain

per acre is the result of a 30-year test with complete fertilizer on wheat at the Pennsylvania Experiment Station.

With fertilizer, 23.7 bushels was the average acre yield; without fertilizer, 13.6 bushels per acre.

Winter Wheat Production

is the name of our free bulletin that tells how to increase wheat yields. Write

The SOIL IMPROVEMENT Committee
Of the National Fertilizer Association
1490 Munsey Bldg., Baltimore, Md.

It is to your interest to mention Farm and Fireside in answering advertisements.

This Special Buggy

\$49.95



Shipped from factory at Chicago Heights.

Absolute Buggy Satisfaction

The materials and methods employed in our own modern factory can produce only buggies of very highest quality. That's why we can give you a guarantee on our Square Deal Buggies and Absolute Buggy Satisfaction.

It is only by selling direct on one small profit over actual cost of labor and material that we can afford to quote our remarkably low prices.

Illustration shows our Special Auto Seat Buggy No. 222115 at special price of \$49.95.

Send Today for Our New Buggy Circular and carefully compare the Square Deal Line of Vehicles with all others offered you.

Montgomery Ward Co.

Dept. Y 99

New York Chicago Portland, Ore. Kansas City
Ft. Worth Write to the House Most Convenient

POULTRY

Pigeons best Squab Producers, twenty varieties fancy Chickens, Ducks, Geese, Turkeys. Our free catalogue explains all. Pure Northern Bred, Farm Raised. ROYAL POULTRY FARM, Box 77, Menominee, Mich.

AUTO TOP ROOF PARCEL POST \$5.95 6UP

Easy to apply, you save two-thirds price of new top; auto wheels demountable rims \$15; buggy and wagon wheels \$7 up; axles \$2. Our catalog gives wholesale prices and freight prepaid offer on everything in buggy and auto parts. Split Hickory Wheel & Top Co., 1107 C St., Cincinnati, O.

SQUAB BOOK FREE

Make money breeding PR squabs. 1916 demand biggest ever. Squab book free, telling money-making experiences. How to sell by parcel post, \$6 to \$8 doz. Start small, grow big. Many women customers. Write today. PLYMOUTH ROCK SQUAB CO., 503 HOWARD ST., MELROSE HIGHLANDS, MASSACHUSETTS.

BROWN FENCE BARGAIN BOOK

Send name on pos- AND FENCE SAMPLE tal. New catalog quotes factory prices, 13c per rod net. Freight prepaid. Sample free also. Address: The Brown Fence & Wire Co., Dept. 21E, Cleveland, O.

PIGEONS PAY

Better Than Chickens. Young pigeons (squabs) bring 40¢ to 60¢ each when 3 to 4 weeks old. Big demand in city markets. Each pair of pigeons easily clear \$4 per year. Always panned up. Very little space and money needed to start. Free Book explains all. MAJESTIC SQUAB CO., Dept. 10, ADEL, IOWA.

THE FRONT THAT GAVE THE GRIFFIN SILO FAME

Continuous Open Door Front. Permanent Steel Ladder Attached. Size 8 x 20 \$ 80.00 Size 10 x 24 116.00 Size 12 x 24 149.00 Other sizes in proportion. Discounts to agents. GRIFFIN LUMBER CO. Box 17 HUDSON FALLS, N.Y.

Only \$2 Down One Year to Pay!

\$24 Buys the New Butterfly Jr. No. 2. Light running, easy cleaning, close skimming, durable. Guaranteed a lifetime. Skims 95 quarts per hour. Made also in four larger sizes up to 6 1/2 shown here. Earns its own cost and more by what it saves in cream. Postal brings Free catalog, folder and "direct-from-factory" offer. Buy from the manufacturer and save money. ALBAUGH-DOVER CO. (12) 2139 Marshall Blvd. CHICAGO No. 624

ABSORBINE

will reduce inflamed, swollen Joints, Sprains, Bruises, Soft Bunches; Heals Boils, Poll Evil, Quittor, Fistula, or any unhealthy sore quickly as it is a positive antiseptic and germicide. Pleasant to use; does not blister under bandage or remove the hair, and you can work the horse. \$2.00 per bottle, delivered. Book 7 K free.

W. F. YOUNG, P. D. F., 23 Temple St., Springfield, Mass.

15 American FULLY GUARANTEED CREAM SEPARATOR

A SOLID PROPOSITION to send new, well made, easy running, perfect skimming separator for \$15.95. Skims warm or cold milk; making heavy or light cream. Bowl is a sanitary marvel; easily cleaned.

ABSOLUTELY ON APPROVAL. Different from picture, which illustrates our large capacity machines. Western orders filled from western points. Whether dairy is large or small write for handsome free catalog. Address: AMERICAN SEPARATOR CO. Box 4058 Bainbridge, N. Y.

Let the manufacturer know that you saw his advertisement in Farm and Fireside. This will insure a square deal.



Live Stock

Made \$78.28 on His Credit

By Ernest L. Shanholtz

APRIL 5, 1915, I bought of a neighbor 15 ewes with 16 young lambs by their sides, for which I gave my note for \$90, payable in eight months, with interest. June 15, 1915, I sold 36 1/4 pounds of wool at 30 cents a pound, which brought me \$10.87.

On October 25, 1915, I sold the ewes for \$68.75, and on November 10, 1915, I sold the lambs for \$91.90. I received \$171.52 for the wool, ewes, and lambs.

November 11, 1915, I took up my note, paying interest to the amount of \$3.24. Here is the result itemized:

EXPENDITURES

Paid for sheep..... \$90.00
Interest on \$90 for 7 months and 6 days 3.24

Total \$93.24

RECEIPTS

Received for wool..... \$10.87
Received for ewes..... 68.75
Received for lambs 91.90

Total \$171.52

Which left a profit of \$78.28, or almost 87 per cent on the investment, in seven months and six days.

I fed no grain to the ewes or lambs from the time they were bought until they were sold, consequently I was out nothing except the pasture, which I believe they earned by cleaning up weeds and sprouts.

Keeping Hogs Healthy

By R. B. Rushing

WHEN I first began the raising of swine, before I learned how to care for them, I had several cases of cholera, and consequently lost almost my entire herd. It was very discouraging to a young breeder. Then I studied how to prevent sickness in my herd.

Nature has provided an abundance of foods of different kinds which will, when properly combined, form a most healthful ration. Nature also provides an abundance of sunshine to destroy most all germs if properly exposed. From my years of experience I would say that if food, water, sunshine, and exercise is strictly attended to there is little danger of sickness. Of course this will not absolutely prevent any of the different forms of sickness. All animal life is subject to sickness, but with the proper care it can be reduced to the minimum.

The feeding of swine is a great question and can be mastered only by experience. Hogs to be healthy must have

a variety of food grains, roots, and forage. The condition of the hogs should cover the kind and quantity.

Different conditions would suggest different methods, and therefore it is not safe to lay down any iron-bound rules.

The question of water is also a very great one, and one that, from my observation, is often slighted. Some seem to think that any kind of a hole will do for hogs, and consequently they are left to drink from the hole that they wallow in. This, I think, is one of the main causes of sickness in hogs; the water becomes stagnant and foul, and is full of disease germs, and the hog taking this foul water into the stomach is bound, sooner or later, to become diseased.

Another very important consideration is sunshine and exercise, and without both of these I have never been able to have success. I have too often seen hogs cramped into a little, dark, filthy pen for fattening.

I have found it most profitable to give my hogs range at all times, whether feeding to fatten or not. It will sometimes happen that cholera will get into the whole neighborhood, and in such an event I would try to keep my herd as far from the adjoining neighbor as possible, and use an abundance of good disinfectant about the grounds and a little in the water. But should the cholera get started in my herd, the first thing I would do would be to kill and burn the sick ones.

I have tried to cure a few cases, but always failed, and also lost money by allowing them to stay on the farm. I find it best to have several different fields for hogs, not keeping them in the same place very long. The land should be cultivated, which acts as a germ destroyer. Everything that can be done to keep things in first-class order, letting nothing go undone, I find to be far better than any medicine that I have ever used.

Makes Money with Mare

By John Coleman

AT SEVENTEEN I was the proud possessor of \$30. I bought a mare (Jess), good but old. Dad fed her for the use of her as a buggy horse.

At twenty I married. In a couple of years we wanted to go into business for ourselves, and Dad sold the first colt, a coming four-year-old, for \$125.

The second colt, when a four-year-old, got mixed up with a cyclone, which slammed him through three barbed-wire fences. He recovered, but only brought \$46 when sold.

The third was a mare colt which I gave Dad. The fourth was a mare colt also; then twin colts, which died; another mare colt; then old Jess died. I sold the two mares at five and three years old for \$247.50 for the two.

In twelve years the original \$30 had brought in \$418.50.

NOT all cases of abortion in cows are contagious; but every aborted calf and membrane should be buried deep or, better still, burned.

THE Nebraska Experiment Station made excellent silage of a mixture of sweet sorghum and alfalfa on the half-and-half basis.

Two Ewes Net \$59.33

By F. E. Schriver

I PURCHASED two ewes coming two years old for \$5.25. These were bred in season, and raised two lambs in 1913. No income was secured in 1913, as I did not sell the wool clip or lambs. The ewes were bred again, and raised two lambs in 1914, one of which was sold in October for \$6, the other one I left. I also sold the two yearlings in May for \$8, and wool for \$9.36, two crops. Also paid out for pasture and breeding services this season \$1. In 1915 I again raised two lambs, one of which was sold in June at ten weeks old for \$4.50, the other one, together with the three old sheep, sold in October for \$30. Also sold wool, three fleeces, for \$7.72, making a total income of \$65.58, and expense of \$6.25, leaving a profit of \$59.33 to pay for feed and pasture during three years.

Raises Colts Worth \$1,000

By Frank Bailey

I BOUGHT a mare ten years ago for \$100, as faithful a work mare as I ever worked. I feel that she has paid her way in work; besides she has raised six colts—all number one, value \$1,000—and the mare does not show any sign of giving up. We would be about as much lost without old Nellie as we would without FARM AND FIRESIDE. We have taken it for eleven years. It is the best paper I ever had, and we are taking four farm papers. I expect to read it as long as I am able.

Scale Shed and Shelter

By F. W. Orr



THIS is a scale shed on an Ohio farm. The owner says that the only objection to this shed is its size. It isn't big enough. You can easily see how convenient this shelter is for loads of hay, grain, and all other perishable products.

Horse-Raising Paid Well

By Henry Blesi

ABOUT eight years ago I bought a mare for \$110. During those eight years she raised five colts for me. She really just had four colts, for one of them she stepped on and broke its leg, so we lost that one. I sold the two oldest colts for \$150 apiece, and the two other colts, which are two and three years old, I can sell for \$150 apiece also, and she has done many years' work for me besides.

During all the years I have had her she has never run away or broke a thing. She is gentle and willing. She is old now, but I still use her as a buggy horse and she runs quite fast yet.

Saving the Golden Fleece

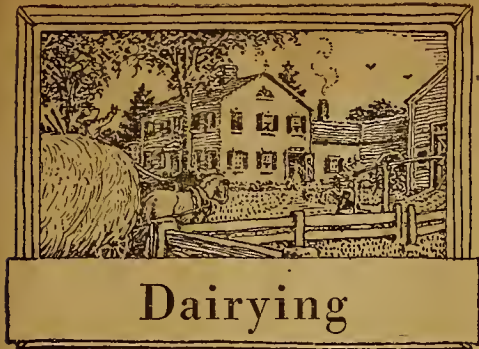
NOW that the wool crop is sold or ready for sale, can you tell how much you lost by improper methods in shearing and caring for the fleeces? Wool men agree that the lack of proper care in shearing and tying the fleece often makes it necessary to cut the price of wool two to three cents a pound. Frequently half a pound to a pound of "tags" have to be thrown out of a seven or eight pound fleece, and the slower grading made necessary for the buyer reduces the figure he is willing to pay.

It is quite an art to know how to shear so that the fleece will fall away from the shears in a loose blanket which can be rolled up with the clean white or flesh side out. This brings the belly and neck wool at the center. If the fleece is rolled from the rump, a better-looking finished roll will result.

Wool dealers are now much more particular than formerly about tying the fleeces with a wool twine instead of a binder or sisal twine of any kind. If vegetable fibers break off and mix with the wool, they hurt the quality of the yarn since they do not take the dye but appear as off-colored specks in the finished cloth. From now on wool is going to be worth too much to use makeshift methods in shearing and preparing it for market.



If enclosed with a fence that keeps the sows away self-feeders can be used satisfactorily with the pigs



Dairying

Twin Calves Reproduced

By Mrs. M. James

IN a previous number of FARM AND FIRESIDE the question was asked, "Will twins reproduce?" My husband bought a large white cow at a sale some years ago, and soon after she had two fine white heifer calves. In due time they reached maturity, and each of them raised a good calf. Cannot state further, as they were sold. But as far as our experience was concerned they reproduced as well as any ordinary heifer.

Adopt Local Breeds

A PENNSYLVANIA reader who is about to move onto a new farm in another part of the State asks what breed of dairy cows, and also of hogs, is considered best. He apparently wants to start in with pure-bred stock.

As far as dairy values are concerned there is very little difference between Jersey, Guernsey, Holstein, and Ayrshire cattle. The difference between the best cows of those breeds is much less than between individuals of any one breed.

Neither is there very much difference between such breeds of hogs as the Poland China, Berkshire, Chester White, and Duroc Jersey. Of course, many breeders have strong personal preferences, but where such preference is lacking the best plan is to adopt the same breeds as are already being raised in the neighborhood.

By so doing one is able to dispose of surplus stock more readily, and he can also buy necessary stock to replenish his own herd as occasion may require. In addition, breeding operations and the exchange of sires are more convenient when several neighbors are raising the same kind of stock.

For Better Ice Cream

ICE-CREAM making as commonly conducted on a small scale results in a product that is sometimes very good and at other times of poor quality. This is not a matter of chance but, as in the case of butter-making, depends on the kind of material you have to work with, and also the methods used.

If the operation of making ice cream is standardized, uniformly good results may be expected. The best grades of ice cream have a smooth, velvety texture, a coarse, crystalline texture being undesirable.

Cream which has been aged for twenty-four hours, or slightly more, will make smoother ice cream than perfectly fresh cream. It will also keep better in case you wish to hold it a few days. The amount of over-run, or "swell," is likewise greater when the cream has been aged. Being thicker, it gathers and holds more air than fresh cream equally rich in butterfat.

Freeze 17 Per Cent Cream

Cream that is to be used for ice-cream making should test at least 20 per cent butterfat, 30 per cent being ideal, and 25 per cent being very good. Most commercial ice cream is made from approximately 17 per cent cream, which requires a starchy or gummy binder to

assist in forming a good texture. However, butterfat is the best body-giving material.

The speed of freezing also has a distinct influence on the quality of ice cream. The purpose of the dasher of an ice-cream freezer is to whip the cream into a smooth consistency. Too rapid freezing will make the product coarse-grained, due to the formation of water crystals which freeze before the cream does. Ice cream that freezes in about fifteen minutes will be of high quality if other requirements have been followed. If the time is twenty minutes or longer, the product is likely to become foamy and light. The best speed of the dasher is about 100 revolutions per minute.

If ice cream is to be kept a day or so before being eaten, use more flavoring extract than if it is to be consumed at once. Flavors weaken when the ice cream is stored.

Start with a Cold Mixture

The best method of regulating the rate of freezing is by the amount of salt used. One part of salt to eighteen parts of ice, by weight, will freeze ice cream if the salt is placed near the top.

The more salt used the lower will be the freezing temperature. A little water poured over the salt-and-ice mixture will hasten freezing.

Have the cream and other ingredients—commonly known as the "mix"—cold before starting the freezer. If the temperature is higher than 50 degrees, the cream is likely to churn instead of freeze. Butter on the dasher indicates too high a temperature.

Ice cream of high quality requires pure sweet cream. Mixing sweet cream with sour cream for the purpose of sweetening the sour cream gives an inferior product, and is a waste of the good cream.

A Jersey Venture

By B. Musser

BEING a poor boy and working on a farm by the year, I asked my employer to keep a cow for me in place of a horse. I bought a nice registered Jersey heifer for \$80. In two years and six months she produced \$100 worth of butterfat, besides raising two calves which I sold for \$25 each.

Last December I sold the cow for \$125. My net cash returns were therefore \$195. I consider this a much better investment than putting the \$80 in a bank.

Faith in Farming

THE dairy scene shown below is not in Wisconsin, New York, Illinois, or any so-called dairy community. It was taken in central Florida. The price of milk in Florida ranges from 10 to 14 cents a quart, and the dairies are for the most part small. Florida depends on the States north of her for a large share of her dairy products.

No small amount of faith is required for a man to build a substantial silo and barn and other permanent improvements in a locality where dairying is virtually untried. The faith of a nation in its army and navy is inspiring, but what shall we say of our faith in farming?

This man believes that his carefully selected dairy cows will more than repay his investment in buildings and in the cows themselves. And it is hard to defeat faith of that kind. His stock doubtless has implicit faith in his care and kindness. More faith of this kind, one for the other, makes the farm a little bit of heaven, and likewise contributes to the material comforts of life on earth. Faith in farming is the kind of faith that makes a man or woman search for his own errors when the farm fails to pay. It is faith in nature.



This man has faith in dairying. He invested in good, permanent buildings, knowing that his cows would pay for them

What a
DE LAVAL
Cream Separator
SAVES
Over any other Separator
or Creaming System

QUANTITY of cream that no other separator will recover completely, particularly under the harder conditions of every day use.

QUALITY of cream as evidenced by De Laval butter always scoring highest in every important contest.

LABOR in every way over any gravity system, and also over any other separator, by turning easier, being simpler, easier to clean and requiring no adjustment.

TIME by hours over any gravity system, and as well over any other separator by reason of greater capacity and the same reasons that save labor.

COST since while a De Laval Cream Separator may cost a little more than a poor one to begin with it will last from ten to twenty years, while other separators wear out and need to be replaced in from one to five years.

PROFIT in more and better cream, with less labor and effort, every time milk is put through the machine, twice a day, or 730 times a year for every year the separator lasts.

SATISFACTION, which is no small consideration, and can only come from knowing you have the best separator, with which you are sure you are at all times accomplishing the best possible results.

EASILY PROVEN—these are all facts capable of easy demonstration and proof to any user or intending buyer of a cream separator. Every De Laval agent is glad of a chance to prove them by a De Laval machine itself—without the slightest obligation to the prospective buyer unless entirely satisfied.



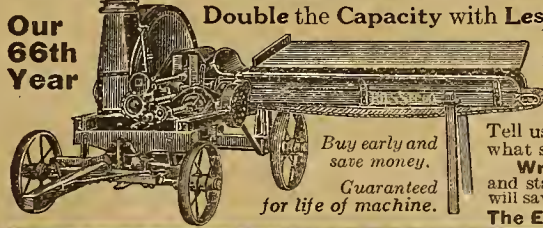
If you don't know the nearest De Laval agent simply address the nearest main office as below.

THE DE LAVAL SEPARATOR CO.

165 Broadway, New York 29 E. Madison St., Chicago
50,000 BRANCHES AND LOCAL AGENCIES THE WORLD OVER

ROSS Silo Fillers for Gasoline Engine Power

Our 66th Year Double the Capacity with Less Power and considerably Less Speed. We make Silo Fillers of extra large capacity to meet the special requirements of all silo users. These machines are specially designed to be operated by popular size Gasoline Engines—6-8-10-12 and 14 H.P. Tell us what your power is and we will advise you what size Ross Silo Filler you require. Write for Our Special Proposition Today and state if you intend to buy this year. Early orders will save you money. The E. W. Ross Co., Box 119, Springfield, Ohio



Three Hundred Million
Bushel Crop in 1915

Farmers pay for their land with one year's crop and prosperity was never so great.

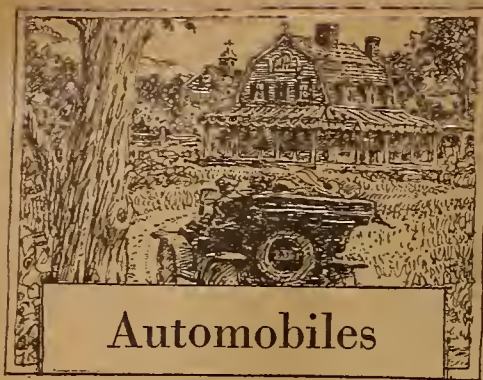
Regarding Western Canada as a grain producer, a prominent business man says: "Canada's position today is sounder than ever. There is more wheat, more oats, more grain for feed, 20% more cattle than last year and more hogs. The war market in Europe needs our surplus. As for the wheat crop, it is marvelous and a monument of strength for business confidence to build upon, exceeding the most optimistic predictions."

Wheat averaged in 1915 over 25 bushels per acre
Oats averaged in 1915 over 45 bushels per acre
Barley averaged in 1915 over 40 bushels per acre

Prices are high, markets convenient, excellent land low in price either improved or otherwise, ranging from \$12 to \$30 per acre. Free homestead lands are plentiful and not far from railway lines and convenient to good schools and churches. The climate is healthful. There is no war tax on land, nor is there any conscription. For complete information as to best locations for settlement, reduced railroad rates and descriptive illustrated pamphlet, address

M. V. McINNES, 178 Jefferson Ave., Detroit, Mich.
W. S. NETHERY, Interurban Bldg., Columbus, O.
Canadian Government Agent.

No passports are necessary to enter Canada



Old Friend Carbon

By W. V. Relma

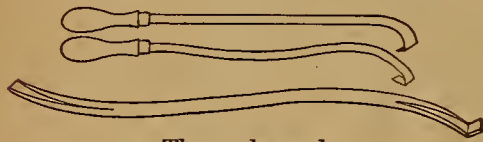
CLEANING the carbon out of the motor is very much like cleaning house or sweeping out the accumulated dirt or dust in a room.

Carbon deposits are due to a number of causes. An improper mixture of gasoline and air produces rapid carbonization. What is known as a rich mixture is a great carbon maker. The lubricating oil is also quite frequently a great cause of carbon troubles. Loose piston rings, which allow an excess of oil to form in the combustion chamber, increase the carbon deposit. However, a great deal of foreign matter also accumulates and hardens upon the piston head and cylinder balls, together with the carbon.

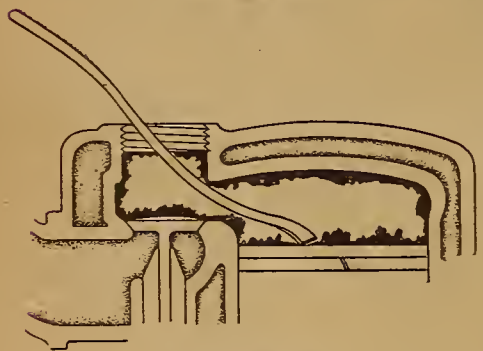
Grind Valves at Same Time

When the motor fails to respond with its usual "pep," and there is nothing particularly wrong, this usually indicates carbon trouble, especially if there is a tendency to overheat and pound when going up-hill.

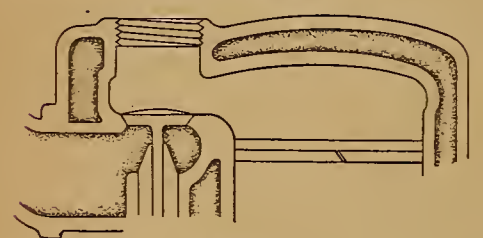
Many cars are made to-day with a removable cylinder head, so that the carbon-cleaning is comparatively made easy by the simple process of scraping. In this case all that is necessary to do is to turn the motor over until two of the pistons (of a 4-cylinder motor) are



The tools used



Before using—



—and after

at the highest point of travel, and then scrape off the carbon. Remove it carefully from the cylinder casting and then turn the motor over until the other two pistons are at the same point, and repeat the operation. The cylinder head should be carefully scraped clean. If the valves are pitted they should be re-ground before replacing the head. A car will frequently run worse after the carbon is removed, if the valves are not ground, than it did before.

In replacing the cylinder head it will be necessary to use care and see that the gasket is properly placed, and also to see that it is thoroughly shellacked, so that the compression will not leak. The avoidance of leaks is very important in the removable type of motor, as there is a greater opportunity for leaks to occur. In replacing the cylinder-head bolts it will be necessary to use great care to get the bolts tight and yet not twist the heads off. One bolt should not be screwed down absolutely tight before any of the others have been partially tightened, but each one should be screwed down a little at a time until all are thoroughly secure.

For the L-head and T-head motors, where the valves are in cages or there is a removable plug which gives access to the firing chamber, it will be necessary to use carbon-scraping tools. These are odd-shaped knives or scrapers which cut and loosen the carbon from the motor walls. The various shapes allow

the scrapers to reach all the out-of-the-way portions of the combustion chambers. Kerosene or some of the advertised carbon solvents will greatly assist in the softening of the carbon and make for easy removal. Of course this should be applied and allowed to stand in the cylinders for some little time before the actual scraping of the cylinders begins.

It will be necessary, as in case of the removable-head motors, to turn the pistons up to the top of the compression stroke so that the scraper will not scratch or injure the sides of the cylinders. Should any liquids be used for softening or removing the carbon at any time, the pistons should be in this position to insure the best results. Otherwise the oil coating upon the cylinder walls would be removed and possible injury would result to the motor.

In removing the carbon it should be remembered that the muffler and exhaust pipe sometimes become clogged and interfere with the proper operation of the car.

Most mufflers are comparatively easy to clean. They can be removed from the brackets attaching them to the car frames and taken apart, and after the carbon is removed reassembled.

Way to Loosen Pistons

By Raymond Olney

NOT a few owners of farm gas engines and automobiles have had the unpleasant experience of pistons sticking, gripping, "seizing," or "freezing" in the cylinders, as the condition is variously called. It is one of the most exasperating of engine troubles.

Last spring a friend of mine, whose car had been standing idle all winter, found that he was unable to start it—the pistons had stuck fast in the cylinders. He had been doing considerable repair work on it during the winter, and had not used it for several months. In fact, after the car was dismantled late in the fall the motor was not started until after repairs and changes were complete this spring.

He was quite surprised when he took hold of the starting crank to "turn 'er over" to find that the pistons would not budge either way. He then tried the method that is generally used in cases of this kind. He threw in the clutch and rolled the car backward and forward. Ordinarily this will loosen their grip, but it didn't this time, which showed that they were stuck mighty fast. He also put kerosene in each cylinder, but that apparently didn't help any.

When he told me of the difficulty he was in, I suggested that he draw off the water in the radiator and put in hot water. I explained to him why I thought this would relieve the situation. My theory was that by pouring hot water into the cooling system, so as to fill the jacket space around the cylinders, the heat from this water would cause the cylinder walls to expand before it reached the pistons. This expansion I thought would probably be sufficient to break the adhesion between pistons and cylinders.

Rock the Car Gently

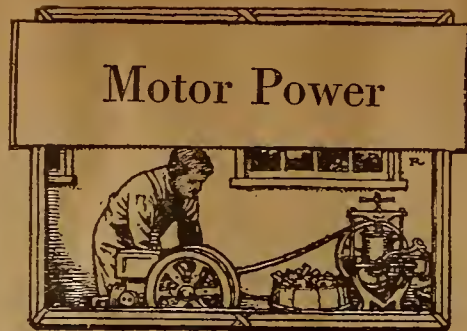
He acted on my suggestion, and the pistons loosened up before he had the cooling system half filled with water. This showed that, to "break their grip," only a little heat and a very little expansion was necessary. Even in extreme cases of seizing only a very small amount of expansion of the cylinder walls is sufficient to cause the pistons to loosen their hold.

The reason for the pistons' sticking as they did is this: Because of the long idleness of the motor the lubricating oil gradually worked down from between the pistons and cylinders and left those surfaces sufficiently dry so that the piston rings simply froze to the walls of the cylinders.

Overheating of an engine, brought about by pulling too heavy a load or by a lack of lubricating oil in the cylinders, will not infrequently cause the pistons to stick. This is the result of overexpansion of the metal. If it is an automobile motor the usual method of loosening the pistons, as I mentioned in a previous paragraph, is to rock the car backward and forward with the clutch in.

This should of course be done after the engine has had a chance to cool down somewhat. But one should be careful not to strain or break any of the parts by using too much force in rocking the car.

The hot-water method is of course the best for this purpose, as there is practically no danger of doing injury. But it can be used only in cold weather. The amount of expansion that would be caused by filling the cooling system with hot water on a day in midsummer would probably not be enough to break the adhesion between pistons and cylinders.



A Gasoline Guess

By B. D. Stockwell

LAST year FARM AND FIRESIDE contained an account of the Rittman process for securing a greater percentage of gasoline from petroleum than had previously been possible. In a recent talk before the Engineers' Club of Dayton, Ohio, Dr. Rittman reviewed the gasoline situation and the progress made toward meeting the present short-



Diagram showing average gasoline prices a gallon and probable trend of final lowered prices. Arrow indicates date of discovery of new process. Some time must necessarily elapse before its effect will be felt

age. The chart shows Dr. Rittman's opinion of the gasoline prices that may be expected for the rest of the year, and here are the principal facts on which the prediction is based:

The production of Oklahoma crude oil has fallen off about two thirds in less than a year. This is a rich oil, and its present low production has been largely responsible for the present high prices of gasoline.

The automobiles of the country are using nearly a billion gallons of gasoline annually—an unprecedented demand.

On the other hand, the Rittman process is slowly making headway toward helping the gasoline supply to catch up with the demand.

Over \$8,000,000 is now invested in equipment for making gasoline by means of that process from kerosene and other relatively inert oils.

Rittman equipment is now being installed in ten additional plants, and twenty more are waiting their turn.

These plants will soon be getting several times as much gasoline from crude oil as before.

Alcohol made from corn and potatoes will not become a factor as motor fuel until gasoline exceeds 40 cents a gallon, which is now unlikely.

Supply is expected to catch up with demand about July 1st, and after that prices may be expected to decline.

More About Tractors

By John Coleman

THE experience of nearly 200 tractor owners in the corn belt forms the basis for a new government publication,



Tractors are especially well suited for doing heavy jobs in hot weather. A gasoline or kerosene engine develops its highest power when reasonably hot

Farmers' Bulletin 719. This bulletin draws no conclusions, but simply places before prospective tractor users the opinions of those who own and operate tractors.

Here are the principal points of interest: In the opinion of the operators the chief advantage of a tractor is its ability to do heavy work, and do it rapidly.

Tractors save man labor as well as horse labor, and do away with some hired help.

It makes deep plowing possible, especially in hot weather.

The average gasoline consumption was 2½ gallons for each acre plowed. This includes reports on old and new tractors and various kinds of plows.

A three-plow tractor is thought to be the best size for farms having 200 acres or less of crops.

For farms of over 200 acres in crops up to 450 acres, the four-plow tractor was preferred.

A farm of 140 acres is the smallest on which a tractor may be expected to prove profitable, and for such farms a two-plow tractor is considered best.

The life of a tractor varies from six to ten and one-half seasons' work.

Plows drawn by tractors do somewhat better work than horse-drawn plows.

Repair charges may be figured at about four per cent of the first cost, annually.

The investigation on which these opinions are based was made in Illinois, where the land was level or gently rolling and quite free from stones. The fields were seldom less than 20 acres, and plowing conditions were not severe except in very dry weather.

A KENTUCKY machinery expert warns against allowing dirt, and especially sand, to get into machinery bearings. Dirt not only cuts the bearings but contains moisture, which causes rust.

Engine Best Investment

By Hugh E. Thorp

AFTER reading the accounts of paying farm investments lately published in FARM AND FIRESIDE, I have decided that my gasoline engine is my best investment for the following reasons:

Runs the sheller and the churn;
Does good work at every turn;
Cuts the fodder, grinds the feed—
Ready for most any need.

Milks the cows and bales the hay—
Motor power's the only way;
Draws the water, saws the wood.
Own one? Well, if not, you should.

Never grumbles, never tired—
Best of all the help I've hired;
Pays me close to ten per cent—
What it cost was coin well spent.

Those are the reasons I like it best,
For it does the work while I do the "rest."

Gasoline Danger

AN IOWA subscriber asks whether it is dangerous to strain gasoline through chamois skin and, if so, why.

A number of mysterious explosions have followed the practice referred to and are thought to have been due to static electricity generated by the passage of gasoline through the chamois skin. A wire-gauze strainer is safer.

"A Trade Last"

By Carlton Fisher

HERE is a little extract taken from the correspondence of a large automobile manufacturer. It was part of an ordinary business letter and was not written for publication. But in an unconscious way it is a tribute to self-acquired mechanical ability:

"It is a recognized fact that the average farmer is more of a mechanic than the city man by reason of his association with farm machinery and because



Tractors are especially well suited for doing heavy jobs in hot weather. A gasoline or kerosene engine develops its highest power when reasonably hot

he has more time on his hands to read. "There is no question but that the farmer takes better care of his power machinery and especially his automobile than does the city man, because it devolves upon the farmer to maintain his car himself rather than depend upon garage men."

THERE are now about 20,000 gas tractors in operation on farms, of which three quarters are west of the Mississippi River.

What She Was Telling Teacher

The Awards Made by the Editors After Reading the Answers of the 31,237 Contestants

FIRST place and a prize of \$5 was won by Miss Josephine Willis of Vine Grove, Kentucky, in FARM AND FIRESIDE'S contest, "What's She Telling Teacher?" which closed June 1st with 31,237 contestants entered. Miss Margaret K. Railey, R. F. D. No. 2, Clarksdale, Missouri, was awarded second place and the prize of \$3. Third place and a prize of \$2 was won by Miss Rachel Sheldon, Fresno, California.

The other awards with a prize of \$1 were: Fourth place, Rev. F. A. Bisbee, Boston, Massachusetts; fifth place, Mrs. D. C. Parshall, R. F. D. No. 1, Box 21, Cimarron, Kansas; sixth place, Miss Sena M. Rath, R. F. D. No. 1, Avoca, Minnesota; seventh place, Miss Fay Speck, R. F. D. No. 1, Dalton, Georgia; and eighth place, Miss Daisy O. Geb- erding, La Grange, Indiana.

Few men entered the contest, because they were so busy in the fields, with the result that all of the prize-winners except one were women. The youngest contestant was six years old, while the oldest person was 93 years old. Every State in the United States was represented. With few exceptions all of the letters were remarkably well written.

Among the 31,237 persons entering answers in the contest, 389 were so close on the heels of the lead- ers that it was in- deed difficult to select the prize-win- ners.

Several very fine sermons on prohibi- tion were among the answers. Other con- testants told about the early history of the United States and Ohio, the agri- cultural wealth of Ohio, the Dayton flood, Billy Sunday, the number of Presi- dents of the United States that have come from Ohio, the educational system of Ohio, and the natural resources of Ohio.

Several thousand of the answers were: "Springfield, Ohio, where FARM AND FIRESIDE is printed." Others said the girl was telling about the motion-picture reels that the Ohio censors wouldn't permit to be shown in Ohio. A number of Indian legends were among the answers submitted. This an- nouncement will have to serve as a per- sonal reply to the 31,229 contestants that didn't win a prize. The editors desire to thank you all for your interest and enthusiasm.

Stands the Test Best

First Prize: By Josephine Willis

OF ALL farm papers that stand the test, My dad says, FARM AND FIRESIDE'S best. It tells us all we need to know, And is published at Springfield, O-hi-o.

Ought to Subscribe

Second Prize: By Margaret K. Railey

DEAR TEACHER, I want you to know Of a town that is located in Ohio, The city of Springfield it is named, For issuing a paper it is famed, Which teaches women to read and to sew, And many things they ought to know. Teaches the men to sow and to reap, To care for their cattle, their hogs and sheep; So everybody ought to subscribe For the good old FARM AND FIRESIDE.

The Home of My Paper

Third Prize: By Rachel Sheldon

THERE is Springfield, the home of my paper—FARM AND FIRESIDE.

The Human Factor

Fourth Prize: By Rev. F. A. Bisbee

AT SPRINGFIELD but a few years ago was the center of population of the United States, a fact more impor-

tant than the geographical center, be- cause the human factor must always be chief in the life of a nation. Now it is the center of the most healthy and wholesome human interest of the na- tion, which finds most adequate expres- sion through FARM AND FIRESIDE, here published.

For All the Family

Fifth Prize: By Mrs. D. C. Parshall

WE HAD quite an argument at our house last night. You see our FARM AND FIRESIDE subscription ex- pires soon, and we all want to take it, but each of us wanted one of the others to pay for it.

Joe said Pa ought to pay because he told Neighbor Jones that one article in the Live Stock Department saved him \$50 worth of pigs.

Then Pa said, "See here, Joe, it seems to me I saw a lad about your size study- ing the Poultry page a good many times last winter, and who is it turns to the Automobile or Motor-Power articles first thing, hey?"

"Oh, I know," said Joe. "Estella should pay because she is always copy- ing some crochet patterns or some

clear print is a great thing in its favor to me. So many farm papers either use such small type or are printed so badly, or both, that they are hard to read, and still harder on the eyes—but not FARM AND FIRESIDE. When I was actively en- gaged in farming it was my authority on every subject, and since I am retired I think the editorials and Sunday Read- ing are worth many times its price. It is the kind of paper I want my children to read. I noticed our subscription would soon expire, and so I sent in one dollar last week to have it renewed for three years."

Stories for Boys and Girls

Sixth Prize: By Sena M. Rath

THE little girl is telling teacher Ohio is the home of FARM AND FIRESIDE, the National Farm Paper, and that it is published for the benefit of the entire household. She says she likes to read the stories for boys and girls, and she also says the whole family can hardly wait until the next issue of FARM AND FIRESIDE—it is so interesting in all its departments and everything pertaining to the farm and household.

She says her papa and big brothers all read about the Farming, Dairying, and all such useful and interesting mat- ters, and her mama and big sisters read the Poultry pages, Garden and Orchard columns, House- wife's Club, House- hold Hints, recipes, etc., and she says Mama often sends for dress patterns from there too, as their patterns are always up-to-date and easy to under- stand. And there are always so many use- ful hints on Needle- work too. And we have many interest- ing moments togeth- er trying to solve the puzzles in the FARM AND FIRESIDE.

She says that none of the family can get along without FARM AND FIRESIDE any more. She says there is also always a good

story in each issue of the FARM AND FIRESIDE, for everyone to read.

An Indian Story

Seventh Prize: By Fay Speck

MANY, many years ago a ship set sail from the old country, it came across the ocean and cast anchor on the Ameri- can coast. The new settlers scattered far and wide, but one family came to Ohio. They were among the first settlers of the State. There was a little girl of ten and a baby boy of three years. For many months they got along very well with the Indians, but it was not very long until they began to show signs of hostility. One day, late in the fall, when the father had gone to mill and the mother to see a sick neighbor sev- eral miles distant, the two children wandered off into the woods to play. As they returned they beheld that the house was surrounded by Indians. The children knew it would mean certain death to go on, so they turned and fled. They ran for about a mile, and as it was then growing dark they crawled into a hollow tree and spent the night. That little girl was my great-great-grand- mother, and that tree stood upon the place where the FARM AND FIRESIDE building now stands.

This story has been handed down through the family, and Grandmother says that tree proved a blessing, but not only was the tree to prove a bless- ing but the spot was to be a still greater one in the future.

FARM AND FIRESIDE has been in our family ever since it was published. It has helped my father and grandfather to solve the problems of farm life. It has made my mother's and grand- mother's household work a great deal lighter. And last, but not least at all, with only a few hours work, it has re- warded me with one of the finest ponies and outfit that anyone ever owned.

Not only our [CONTINUED ON PAGE 17]



The editor's secretary opening the letters received from the 31,237 contestants. Your letter is in the pile

fancy-work idea she gets from the Housewife's Club."

"Well," said Estella, holding up the spider-web lace she had copied from the April 22d issue of FARM AND FIRESIDE, "Isn't it pretty? But, really, Mother gets more benefit from the home page than I. She gets all her new recipes and helps about the housework from FARM AND FIRESIDE."

Then Mother said: "If real benefit is what settles the question, surely your uncle Benjamin should pay. The pre- scription he got from the Good Health column helped him more than all the doctors he has had in five years, and his success as a dairyman is the outcome of the knowledge he gained from the Dairying and Live Stock pages."

Grandfather had been silent, but his little amused chuckle occasionally told he was listening. No one had suggested his paying, though he does enjoy it too, for, you see, he is so old and cannot work, and only has his pension.

Then Estella spoke up again: "Really, I think Cousin Adeline ought to pay for it, because she is just wild over the good stories in it—can scarcely wait for the next number to come."

That made Cousin Adeline out of pa- tience. Just as though she spent her time in reading stories! And, you know, she sews most of the time. "I should like to know who makes all the dresses, shirts, and underwear for this big family," said she.

"And where do you get all your styles and patterns?" said Estella.

"Why, from FARM AND FIRESIDE, of course," Cousin Adeline answered. That made us all laugh.

Then dear old Grandpa spoke up. "My children," said he, "I am glad you all think so much of FARM AND FIRESIDE. It has been my stand-by for nearly forty years. It is the best farm paper I know of, and I have read many in my time. It is low in price and has more than twice as many numbers in a year as most farm papers. Its very

We are at Your Service

Your subscription to Farm and Fireside en- titles you to the services of the Editorial and Business Departments of the paper free. We spend a lot of time and money to collect infor- mation on the things that affect you and your business. We wish to give you the benefit of this information. Feel free to write to us if you need information or desire advice.

Address the Editorial Department for any infor- mation you may desire on any or all of these subjects: Live Stock, Dairy Meth- ods, Poultry-Raising, Crops and Soils, Seeds and Nursery Stock, Market Packages, Automobiles, Garden and Orchard, Farm Machinery, House- hold Equipment, Insect Pests, Handy Devices, Recipes, Good Books, and Health.

Address the Circulation Department if you wish to know about Premiums, Agencies, Subscriptions, or Clubbing Offers. Ad- dress the Pattern Depart- ment if you have questions concerning Patterns and Fashions. Address the Business Manager if you desire information about Advertising Rates, or Re- liability of Business Con- cerns.

If you are in doubt about which department to write, address the Edi- torial Department and your inquiry will be cared for properly.

If there is something in Farm and Fireside you like or don't like, let us hear about it. Don't wait until you have a question to ask.

Farm and Fireside
Springfield, Ohio

Uncle Job's Will

What Happens in the Knapp Family After a Bequest

By ANNIE HAMILTON DONNELL

Illustrated by Robert Amick

ASHER KNAPP breathed hard as though hurrying. He was sitting on the chopping block, his fixed gaze on the little chip-strewn area about him. Gradually the familiarity of the place soothed his dazed and twisted faculties. He realized things—that up at the house Millicent was nearly ready to go; that down here he was not ready. Millicent and he had always before been ready together.

"She's glad to go," he muttered. He had not made up his mind yet whether he himself were glad or sorry; he was a slow man. But, sitting there among the chips, he was certain that he was sorry to go to-day.

"It's sudden; I ain't used to sudden things," he mused explanatorily, lifting his gaze heavily to the old blue pump and letting it dwell there with a species of tenderness. Humble associations stirred him. He could breathe again the sharp air of early morning and see a figure, swathed and mittened, breaking the ice in the trough under the old blue nozzle, and the figure was himself. Slaking his thirst at hot noon—the same figure. The blue pump and he had been friends forty years—fifty—fifty-five. He remembered a proud day when he had first been able to "bring water" with weak but availing tugs of his baby arms. Then how quickly he had dropped the handle and run to the nose of the pump to catch the tiny trickle in his mouth!

Well, he would draw one more pail of water from the pump anyway, just for old times' sake. Then he started with it toward the house.

"Asher! Asher!"

"Yes I'm coming, Milly; I'm coming."

"Well, I declare! What you bringing water for at this late hour?" She stood in the doorway, oddly unfamiliar in the splendor of her best clothes. He was used to her standing there in calico dress and apron. "I declare if you ain't the slowest man! Seems as if your feet were glued to the ground and you had to tear 'em up every step!"

It seemed a little like that to Asher Knapp. After he had set the pail guiltily upon the porch he put up one calloused hand to his brow and tried to wipe away his bewilderment at the effect of Millicent's best clothes. He felt the need of calico and clear thoughts.

"Well, everything's done but locking the door. The men have been here and taken the trunks and boxes. You have no need to go in. What are you going in for, Asher?"

He turned and came back slowly. The empty house called him—the bare old rooms, the ancient papered walls, the mantel shelves bereft of their humble garnishings. They had never called him before; the call oddly embarrassed him. He was conscious of thinking that if he were a woman he should like to cry.

MILLICENT KNAPP did not cry. She was a small, brisk woman with a capable manner. Her motions had the effect of bustlings; she was rarely still. Her husband had missed in her the softness and mother gentleness of women who have rocked little children to sleep. In his slow mind awoke sometimes a longing to see Millicent thus—suddenly to come upon her between some daylight and dark and see the dim outline of a little head against her arm. The startling realization that the little head, in that event, would belong also to him had more than once overwhelmed him.

"There! The last enduring thing's done. Come along, Asher."

"Yes, I'm coming, Milly; I'm coming."

"Well, come then!" she laughed out good-naturedly. Millicent was happy. She was turning her back on the narrow, starved life that she hated. The life beckoning to her would hold comforts, even simple luxuries and, better still, the joyous sense of ownership. Millicent Knapp walked on air.

"Blessed be Uncle Job, Asher!" she cried. "Asher stop right where you are and say it! We'll say it in chorus—now, 'Blessed be Unc—' Where are you, Asher?"

"I'm com— 'Blessed be Uncle Job,'" hurried Asher.

"Well, that'll have to do I suppose. Uncle Job wasn't very particular. But it does seem sometimes as if you didn't more'n half realize what he's done for you, Asher Knapp."

"He didn't leave it to me, Milly."

"No," she suddenly exulted; "he left it to me. It's my farm. Acres and acres—mine!"

In his grave crabbed old Uncle Job must have stirred at her outbreak. Millicent herself, moved so unwontedly, presented an amazing aspect to the man who plodded beside her. Milly had always been patiently placid. He had never heard her cry out before.

"Milly!"

"Yes, I know. You think I'm crazy, and I am—with joy. We're beginning a new life. Asher, you know the biggest field of all?"

Her abrupt transitions amazed him. He could not follow her in his lumbering way from "a new life" to the "biggest field of all."

"Well, I mean to have that taken up this very first year. All of it, Asher—such a plowing as never was! It is run out; it shall be the finest field in the country yet. Oh, you stupid, you look as if you'd never seen me before!"

He never had—like this. The bewilderment he suffered was actual pain. It was as if he had left Millicent behind in the empty house and this brisk-stepping, enthusiastic woman walking beside him were a stranger. The effort of getting acquainted taxed him sorely. He had always been a shy man with all women but Millicent.

"You've been farming all this time, and now it's my turn. Maybe you thought because I stayed in the house and washed the pans that I couldn't reclaim the run-out field; but you wait and see!"

Poor Asher dwindled suddenly to the humble status of hired man. He had not thought of this aspect of the change that was on its way to him. He plodded on toward the little railroad station, growing heavier-footed at every step. Millicent, his wife,

"You'll have to dig 'em all up. I want this field planted to corn"



seemed to move in jubilant bounds. She had the odd appearance of continually outstripping him and coming back to meet him. His perturbed thoughts harked back to the small, uneven, mortgage-crippled farm behind—his farm.

"We'll have a hired man all the time, Asher. I guess you and he can manage twenty cows, can't you? I'm going to keep twenty. Twenty cows and twenty sheep and twenty pigs." She laughed girlishly. He remembered that Millicent had always wanted things in twenties. She said once it was because she had been married at twenty. He had thought it a beautiful thing to say. And those other things—

"You must give me twenty silk dresses, Asher. And twenty diamond rings." He remembered how she had looked and laughed when she had said that. And he had not given her even the twenty cows and sheep. It had been left for Uncle Job to do it.

"I ALWAYS liked the idea of twenty of everything—I you know I always did, Asher." She might have been reading his thoughts. "I made my napkins and towels by twenties, and my sheets and pillowcases, and I always meant—" She caught herself up with a little jerk, remembering what she had always meant to do. Her brown, round, middle-aged face slowly reddened like the face of a young woman.

The rest of the trip from the old to the new home was rather a silent one. They had never been a talkative couple. Life itself had been silent to them, as is apt to be the case where little sons and daughters are not present to make it a thing of laughs and cries and daily din. Long ago Asher Knapp had exhausted the slender source of speech with which

Nature had endowed him. He had, as he would have explained it, said his say. He had nothing new to say to Millicent, and wisely refrained from needlessly repeating himself. Millicent accepted his silence as she accepted his slow steps and big hands and feet; they were all parts of Asher. Thirty years ago she had accepted Asher.

There was much to be done on the new farm that Millicent's old uncle Job had left to her, but more yet to be done in the big house that from its perch on a high knoll dominated all the meadow-land and pastures. Millicent gave all her time at first to the house needs, and Asher and the new hired man had their way outdoors. The new experience of having room and help enough went to Asher Knapp's head like new wine: he reveled in it, forgot the old place, exulted in the new.

LONG ago, when there had been unspoken hopes of a son to trudge afield with him, Asher Knapp had indulged in his one flight of imagination. He had named the little son that never came. His one unpublished bit of poetry had been the name—Victor. It was emblematic to Asher of the triumphs the little son was to achieve. Now, in the wider, prouder life on the new farm, wistful thoughts came to him. This would have been grand for Victor. He pictured the boy, grown tall and manly, working beside him in the beautiful level fields. He could almost see the brown young face and the bared brown young arms, splendidly muscled. All that he was not Victor would have been.

"Too bad, too bad!" sighed Asher Knapp over his work.

"What? Did you speak?" the hired man queried. They were at work together. Asher Knapp turned suddenly, and seeing the good-humored, common face where the boy's should have been felt a curious rage stealing over him. It was not for this stranger to look into the sacred place of his thoughts of the little son, where even Millicent had never looked.

"Go up and—feed the stock. To the barn," he uttered slowly, afraid of the anger within him. The hired man regarded him in humorous amazement.

"Gee, I guess you don't know the time o' day—"

"Feed the stock!" thundered Asher Knapp. It was his first thunder, and the echo of it seemed to linger in the air to shame him. But he had succeeded in getting rid of the hired man; of Victor too, for the little son seemed to creep away, frightened by the thunder. Asher worked on alone, outwardly stolid, but in his soul chagrined.

"I never'd made the right pa for him," he thought sadly. "I guess the Lord was right."

One day at the end of a month Millicent awoke to the consciousness of a perfectly trim, clean house. The breakfast dishes out of the way, there was nothing imperative to be done. At last she was free to do some farming. She laughed delightedly at the notion. She would go down in the fields and see what was going on. It was high time.

The planting was going on. Asher was in the big field planting potatoes. An invisible figure, bare-armed, brown, and young-faced, worked beside him. It was a beautiful morning and Asher worked almost gaily. Occasionally he indulged in scraps of whistling, occasionally in the strange new pastime he had taken up of talking to the boy, Victor. The hired man had been set to work at a distance—this field was reserved for Victor and his father.

"It'll be the finest field in the country yet!" Asher Knapp said glowingly. He bent and unbent his old back nimbly, like a boy. He had not been so happy as this for a long time.

To Asher and the invisible son came across fields Millicent. She had her apron over her head and her calico skirts gathered up thriftily. She stepped at her usual brisk pace. Asher, spying her approach, nodded a greeting. He did not see that his humiliation stalked beside her and was coming nearer every moment. Millicent did not see the tall son beside Asher.

"What you planting?" called Millicent. There was a faint note of exasperation in her voice; she had not meant to have anything planted without her supervision.

"Po-ta-toes," shrilled Asher serene-toned.

"Potatoes!" Millicent picked up her skirts and came on running. It was not potatoes she wanted planted in that field. The exasperation took rapid strides toward anger.

"What are you planting potatoes for, Asher?" she gasped breathlessly as she reached him. "What you planting anything for without me knowing? I want corn in this field. The biggest field of corn in the county, that people'll stare at going by."

"Potatoes'll grow better in new-broke-up land. Them the first year and corn the second and lay it down the thir—"

"You'll have to dig 'em all up and plant corn. I want this field planted to corn." [CONCLUDED NEXT ISSUE]

E W

More Wheat to the Acre

[CONTINUED FROM PAGE 3]

Walter B. Jessee of Woodward County, Oklahoma. "I plow just as early as possible. June or July is my preference. Early plowing, I think, is more important than deep plowing, but wheat land should be plowed six inches deep. I follow the plow with a spike-tooth harrow or a subsurface packer. If plowing is done three months ahead of seeding time the harrow is used on each day's plowing. Later plowing is followed by the subsurface packer."

With plowing finished, Mr. Jessee makes an effort to store all of the moisture for the coming wheat crop. In deeply plowed soil it is possible to hold a heavy rain, and with liberal use of the spike-tooth harrow or disk to hold the moisture it is possible to get a fine seed bed full of moisture and well firmed for seeding. He uses a harrow or disk, just as his judgment dictates. One of these implements is used after every rain to break up the crust, kill the weeds, and establish a dust mulch two or three inches deep.

"One of my neighbors told me in 1912," continued Mr. Jessee, "that I was working a field to death, but the next year this field of 100 acres yielded more than 3,000 bushels of wheat, while many fields near my farm were not harvested at all on account of the dry weather."

In Woodward County, Oklahoma, the seeding is done in September or October. Many of the wheat farmers use a disk press drill, and sow one-half bushel of re-cleaned and graded wheat to the acre. For seeding later than October 15th they sow three quarters of a bushel to the acre.

"In producing wheat I try to save labor," explained Mr. Jessee, "by using large implements: five or six horses on a gang plow, six on a sixteen-foot harrow, and six on a seven-foot tandem disk will plow four acres, harrow thirty, or disk seventeen without exhausting any horses."

"Harvesting is generally done in June. I use a fourteen-foot header. This requires six horses and one man. Two header barges with two men each are needed to receive the grain from the header and haul it to the stack. A stacker and his helper complete the crew. I cut from 20 to 40 acres a day, depending on the crop."

Threshing is usually done in Woodward County in a month. Mr. Jessee has held more wheat than he has sold from the machine. He usually sells during the winter months.

"That the preparation of a good seed bed cannot be overemphasized is shown in many wheat experiments conducted at our station," declared W. M. Jardine, director of the Kansas Experiment Station. "A good seed bed has much more to do with increasing yields than the variety grown, and must be kept in mind. While our soils are rich in fertility, the fertility is less readily available to the plant than it once was. The soil needs to be plowed a little earlier in the season to bring about the same favorable condition for planting that once could be obtained by the mere scratching of the soil."

"We need to give our land a rest from wheat once in a while," continued Mr. Jardine, "and plant some other crop like corn or alfalfa or the sorghums. We need to carry some live stock on the land and utilize as feed the roughage that now goes to waste on so many farms—roughage like corn stover, sorghum stover, and wheat straw. By diversifying crops and maintaining a few head of live stock on each wheat farm the farmer will furnish himself with profitable employment every working day in the year. Under the present prevailing system of growing wheat a man is out of a job about six months of every year. No other business under the sun would provide a man with even a decent living if conducted in this manner."

"In preparing our land for spring wheat we always plow it not less than six inches deep in the fall," explained W. C. McCormick of the firm of Axline & McCormick of Lemhi County, Idaho, when telling me his wheat-growing experiences. "We usually choose old meadows for the wheat crop—meadows that have been in clover, timothy, or alfalfa. We find the old run-out alfalfa meadows produce the best wheat crop of any land we can use. If we haven't any meadow land available we use land that has a two or three year rest from wheat."

"The fall plowing lays open to the snow and rain all winter. Freezing and thawing packs and pulverizes the land, which puts it in excellent shape for seeding in the spring. It retains moisture in sufficient quantities to sprout the grain evenly very soon after it is seeded."

"As soon as we are able to work the

E-W

ground in the spring," continued Mr. McCormick, "it is gone over with a 20-inch disk harrow, disk to a depth of four inches, lapping the disk half each round. Immediately after this operation the ground is leveled and pulverized by means of a 16-foot drag. This operation fills the dead furrows and drags down any rough or high places, making irrigation much easier."

The seed wheat is treated with formaldehyde to prevent smut, and is drilled in three inches deep with a disk drill. The disking and harrowing is continued until all of the ground is seeded.

"With this method," Mr. McCormick said, "we have our wheat sowed in a well-pulverized top-dressing, planted down within one inch of a firm bed of moist earth which has a store of moisture gathered throughout the winter months."

After the wheat is sowed on the Axline & McCormick farm the land is marked, or corrugated, with a patented lay-off and pulverizer. These drills or corrugations are about three or four inches deep, according to the slope of the land. The drills are set deep enough to prevent the water from flooding over the land and baking.

"We raise the Defiance hard spring wheat," continued Mr. McCormick, "using 100 pounds to the acre. Our land is mostly heavy clay soil, and it is on this clay we have the best success with wheat."

Axline & McCormick harvest their wheat with a binder usually in September. They leave it in the shock for ten days to two weeks before stacking it. It is left in the stack until it has gone through a sweat, when it is threshed.

"In the production of fall wheat," concluded Mr. McCormick, "we follow the same practice as with spring wheat, except we plow the land in June and sow in August, irrigating once to give the grain a good start before freezing weather starts. If the wheat makes too great a growth before the growing season closes in the fall we pasture it off."

Thus, whether you grow wheat in the East or West, South or North, the secret of big yields and success is a thorough preparation of the seed bed, and early planting if insect pests such as Hessian fly aren't present.

What She's Telling Teacher

[CONTINUED FROM PAGE 15]

home but over 600,000 other homes are made happier by FARM AND FIRESIDE. Too much cannot be said in favor of FARM AND FIRESIDE. But I am proud that it is published in Springfield, Ohio, where my great-great-grandmother spent one night hiding from the Indians. This, if no other reason, would cause the paper to be near and dear to me.

A Farm Home Tonic

Eighth Prize: By Daisy Gerberding

MY PAPA says: FARM AND FIRESIDE has done him more real good than any other paper. It's a tonic in any farm home, and we wouldn't keep house without it. Mother says it's doctor, housekeeper, and dressmaker combined for her; and my little brother and I just love the Sunday Reading.

Old-Fashioned Roses

By James Whitcomb Riley

THEY ain't no style about 'em,
And they're sorto' pale and faded,
Yit the doorway, here, without 'em
Would be lonesomer, and shaded
With a good 'eal blacker shadder
Than the morning glories makes,
And the sunshine would look sadder
Fer their good old-fashion' sakes.

I like 'em 'cause they kindo'—
Sorto' make a feller like 'em!
And I tell you, when I find a
Bunch out whur the sun kin strike 'em,
It allus sets me thinkin'
O' the ones 'at used to grow
And peek in thro' the chinkin'
O' the cabin, don't you know!

And then I think o' Mother,
And how she ust to love 'em—
When they wuzn't any other,
'Less she found 'em up above 'em!
And her eyes, afore she shut 'em,
Whispered with a smile and said
We must pick a bunch and putt 'em
In her hand when she wuz dead.

But, as I wuz a-sayin',
They ain't no style about 'em
Very gaudy er displayin',
But I wouldn't be without 'em,—
'Cause I'm happier in these posies,
And the hollyhaws and sich,
Than the hummin'-bird 'at noses
In the roses of the rich.

(By Permission of Bobbs-Merrill Company)

Our Friend, Mr. Toad

By Anne Porter Johnson

"COME, come, here's a toad!" cried Ted.

"Oh, oh, don't touch him!" screamed Ruth, jumping to one side.

"Let's get sticks and make him hop," suggested Robert.

"We'll keep him on the jump," said Ted as they came back with stout sticks.

"Oh, don't hurt him!" coaxed Ruth.

"Don't poke him so hard, Ted."

"Ho, ho, ho! You can't hurt toads, silly!" said Robert. "Toads haven't any feelings."

"Why, Robert Wilson, how do you know?"

"Pshaw, Ruth, you're so foolish! Why, a toad isn't good for anything at all!" broke in Ted, giving Mr. Toad a poke.

"Oh, ho, see him jump! Poke him on that side, Robert."

"Isn't he the very dumbest thing you ever saw? I can't imagine why toads are made. There's nothing the least bit interesting about them, and they're so useless. All they can do is to hop, hop, hop."

"Well, they don't do any harm, and it's mean to poke them with sticks, so it is," said Ruth. "And they're surely good for something."

"Well, what is it?" asked Robert.

"I—I don't know," admitted Ruth.

"The old fellow is pretty well tired out," laughed Ted.

"And scared half to death," said Robert.



"It's mean to poke toads"

ert. "That last poke I gave him he didn't like a little bit."

"Oh, let him alone, boys, do!" Just as Ruth spoke Uncle Will came into the garden.

"Uncle Will," called Robert, "come. We're having great fun with Mr. Toad."

"We've got him about fagged out," said Ted.

"Ye-es, I see," agreed Uncle Will, looking down at the poor toad. "Mr. Toad wants a drink badly."

"A drink!" exclaimed Robert and Ted together.

"Sure. He's very thirsty," went on Uncle Will. "Can't you get him some water, Ruth?"

"Why, Uncle Will, why—how—" Robert stopped.

"Whoever heard of carrying water for a toad!" said Ted.

By this time Ruth was back with the water. Robert took the pan and put it down close to the toad.

"He doesn't drink with his mouth, Robert," said Uncle Will.

"Why, how does he drink then?" asked Ted doubtfully.

"He drinks through his skin," explained Uncle Will, taking the pan and pouring the water over the toad. "There, see him stretch himself out in that little pool of water? He feels much better now. He was about tuckered out," continued Uncle Will, "and, to make it worse, he was almost famished for a drink. He's a very fine toad."

"He's swelling up nice and fat since we gave him the water," said Ruth.

"See that fly?" asked Uncle Will quickly.

"Yes. Well, dear me, where did it go?" Ted, greatly surprised, looked around for the fly.

"The toad was too quick for you, Ted," laughed Uncle Will. His tongue shot out and, zipp! the fly was gone. Now watch a bit and see what happens."

Another fly came along. Out came the toad's tongue—the fly disappeared. A beetle vanished in the same way.

"Why, Uncle Will!" gasped Robert, "I didn't know— There goes another fly—see?"

Ted stared at the toad with wide-open eyes.

"How does he do it?"

"I don't know that I can tell exactly how he does it, Ted, but I've read that he has a peculiar kind of tongue, made

for his own use. It's in the front of his mouth, and it's sticky. When a fly or bug comes along he gathers it up on his tongue, and it sticks fast. It can't get away."

"What else do they eat?" asked Ruth, feeling much better, now that the toad was safe.

"Oh, grasshoppers, caterpillars, and other insects, as well as the flies and beetles. A toad destroys a great many of the harmful insects; in fact, he is very useful in the garden," said Uncle Will.

Robert glanced sidewise at Ted.

"Toads have queer habits of dress too," went on Uncle Will.

"Dress?" Ted's eyes opened still wider. "Dress, Uncle Will?"

"Yes, they change their clothes, or skin, as you please, coming out in a shiny new dress about four times a year, I think."

"Oh, that's surely a joke, Uncle Will!" giggled Ruth.

"No, indeed; it's the truth. It's not a joke at all."

"Now, see here," said Robert, looking Uncle Will straight in the eye, "what becomes of the old skin, I'd like to know?"

Uncle Will smiled.

"Well, it goes into Mr. Toad's mouth and down his throat. At a certain time the old skin splits down the back. This makes it possible for the toad to pull out his legs. Then he draws the old skin over his head, and into his mouth the whole thing goes and, pop! he has a fine new dress."

"Dear me!" exclaimed Robert. "A toad is a wonderful thing, after all!"

"He's a very interesting study, to be sure," replied Uncle Will.

"Why, where is he?" asked Ruth. "I don't see him."

They found him in the onion bed.

"He's hunting around for his dinner, I suppose," said Uncle Will. "I'll be very glad to have him live in our garden all summer long. Let's try to make him as comfortable as we can, and perhaps more toads will come to keep him company. We'll welcome every one and treat them as nicely as we know how."

New Puzzles

Lesson in Comic Geography

1. What island ought to have many small fish?
2. What river would be good to catch fish with?
3. What mountains would make a good cradle?
4. What mountain would be good to carry on your head?
5. To what mountain should you go to study geography?
6. Where would you go for fish bait?

All Around the House

(The Library)

You remember that in a previous issue we saw the puzzle artist's favorite pretty girl in the kitchen, making an apple pie; now in this issue we are going to see the same pretty girl in the library, very busy reading. She has taken off her kitchen apron and is pre-



tending to pursue culture—though I believe she is reading a book on "Furnishing the Library," so that she will be able to guess the rebus pictures.

If you want to guess the rebus pictures, too, don't waste time reading books about it, but get right to work studying the pictures. What should there be in a library, anyway? Think it over and see how many of these rebus pictures you can figure out.

A Little Charade

My first is a female,
My second the same,
My whole is much dreaded—
Pray what is its name?

Answers to Puzzles

Puzzles Printed Last Issue

Two Riddles

Cloak. Dotage.



Sunday Reading

Live and Learn

By C. I. Junkin

I HAVE a curious little lamp
That holds three pints of oil;
It burns three weeks without a hitch,
And saves me lots of toil.

I never heard of such a lamp;
Indeed, I was surprised!
But I am glad I read the news
And saw it advertised.

Right From the Heart

By Edgar L. Vincent

WHEN a squirrel wants to get the sweetest part of the kernel of corn, he strikes for the heart.

You have perhaps watched one of these bright-eyed little fellows on a spring morning when he is taking his breakfast. Somewhere he has found part of an ear of corn. What a bonanza for him, after the long winter's housing up in the hole in the old maple yonder, with never a thing to eat but dried old hickory nuts laid up last fall!

For a moment or two he sits on the woodpile and chatters about his find. Now and then he turns a quizzical glance your way, as if to ask what you are going to do about it. "Going to hurt me, or will you give me the same chance to live and have a good time that you yourself want?" Then he dives straight for the heart of the kernel of corn. Right there is the sweetest, richest, most nourishing bit of all. The shell he tosses away, and picks up another kernel—the dear little gormandizer he is!—and digs the heart out of that too.

For the heart is sweetest of all.

Up through the meadow on a warm summer morning you make your way. You have been busy while the sun has been climbing toward midday. Now you must have a drink. Why not stoop down by the side of the brook? Here the water is pure and clear as crystal. It ripples a sweet song to you, as if to invite you to kneel on its bank and slake your thirst.

But no. Up yonder is the spring—the heart of the brook. No water so cool as you will find there. Down here the little stream has touched the earth and gathered up something of its impurity. Many a bit of wood, more than one tiny straw, floats on the surface of the water down here; but up there it is cool and fresh and clean, just as God made it. There you kneel and drink till thirst is gone.

The heart of the spring is purest of all. Let's make our word mean a little more. The heart is always best of all. And yet, why is it that many times you and I hide our hearts away from those who love us best of all? I know what you will say: "I do not like to wear my heart on my sleeve. It is all right to laugh and to smile, and to be friendly with everybody, but my heart's my own."

So while we keep our hearts wrapped about by this shell of hardest steel, men and women are going up and down the world starving for what we might give and be the richer for the giving.

This morning you met one on life's way who really needed a kindly word. His home life is so bare! His soul so pinched for lack of a warm, tender, loving touch! Did you speak the word which would bring cheer? Did you give the touch that would have made the whole day sunshiny and beautiful? Did you? Or were you cold and distant, so that he went on a bit more lonely, a little more hungry than ever before?

It costs to give of one's self this way? Surely it does. When the heart of the kernel of corn was gone to make the breakfast of the squirrel, nothing was left that ever would be worth while afterward, for the life of the corn is in the heart. Giving that, it gives all. A little less water went trickling down the hillside to turn the wheels of the mill below after you had knelt at the spring that summer morning. But the world was a little better and a little happier after that. Giving to the very last is the grandest thing you and I ever will do.

But there is this difference when we give from the very heart: Out of our heart of hearts we have taken a seed and dropped it into warm, yielding, blessed ground. Now if we but drop a

tear or two to soften it, by and by when we go that way we will find fruit, rosy-cheeked, beautiful, delicious. It does cost to give right from the heart; still, he who thus gives is richer than ever before.

Away off in the heart of some of the tropical lands grows a wonderful vine. Planting its roots deep down in the dark earth, it feels its way up through the shadows, clinging to the branches of the trees, pushing on toward the sunlight. Listen! What is it saying now? "Old Mother Earth, lift hard down there! I know it takes your strength; I can feel the very throbs of your heart as you tug with your arms under me. But you keep cheery and I'll do my best, and some day something worth while will come of it."

And fond Mother does lift hard while the vine presses on heavenward and skyward.

There comes a day when the last shadow has been passed. Out into the clear, pure air of the sky the vine leaps, and away up there it sends out a bud that becomes a lovely blossom, the very crowning beauty of its life. The heart of the gray earth has lifted till the flower comes. Little to show for the work done till the topmost branches come at last into the sunshine, but there is radiant glory.

Right from the heart—that's the way to give. Give smiles; give words of hope, joy, and comfort; give the very best there is in you, and some day blossoms will hang their banners of beauty above the reach of earth's shadows, where God will see them and all the world is blessed.

Let There be Light

By L. D. Stearns

AND God said, Let there be light, and there was light." Did you ever watch the day as it came creeping, creeping from the depths of night—softly, grayly, at first, then with a little clinging glow of gold and pink edging into the gray, and start blinking sleepily overhead, until, all suddenly, behold! a golden glory over all the world, and the new day is born?

I love to think of that first day awakening, when God, from His high heaven, cried into the darkness of the unformed world, "Let there be light," and from the night of chaos the new world awoke; and, as it sprang, all glowing, into sudden light, He finished, "It is good."

In every life, every soul, comes supreme moments when the God spark in us rises high on its throne and cries, "Let there be light."

Friend, heed that call. We're groping but blindly, for the most part now, I think, knowing so little of the soul and the bond that reaches up and ever up, uniting us with the great soul of the Infinite.

There comes to us at moments something that we do not understand, a little conscious touch of fleeting power, of reverent awe, a sudden reaching out to the better, higher, nobler things of life; but we turn carelessly aside, and the crucial moment is gone. We have not understood the call to the soul, "Let there be light."

Yet sometimes, now and then, we pause and wait, and something sweet and holy and calm comes flooding our soul, as the glory of the new day comes flooding the world, fresh and sweet from the land of night.

Friend, begin the day aright. Let the light come into your soul before you face the problems of the day. For just a moment get face to face with God. Difficulties are before you; decisions must be made; tangled threads must be straightened; mistakes of yesterday, perhaps, made right.

Every day and every life has its own individual problems. Yours aren't the problems of the world. They are yours. They're between you and the Almighty. Small or great, they must be faced. Let Him see your heart. He knows it already, but just hold it out before Him in the morning. Even though you utter no word, bow your head for a second and wait, while like a benediction the command goes forth, "Let there be light," and, straight from the heart of the Eternal, light will come stealing softly into your soul.

Every morning the slate of life is handed out, clean and fresh, for the new record that must be placed thereon. We can't avoid the writing. We can decide what the writing shall be; and one day the volume in which all the records are bound will be opened and the story read and the judgment passed. Let's try to make our record one to be proud of.

"And God said, Let there be light." And the light is there. It rests with you, friend, it rests with me, whether we'll let it illumine and glorify our lives or whether we'll go creeping gradually on, just glimpsing it now and then from afar.



Housewife's Club

How to Improve the Cellar

By Alice Preston Mills

HOW many times have you gone down cellar with but two matches, had one go out in lighting, and burned your fingers in an attempt to find a can of peas before the other match went out? When you returned to the light you found in your hand a can of watermelon preserves.

A small electric searchlight or a lighted candle will provide light enough to find the things you wish in the cellar. The searchlight or the candle and a box of matches may be left on a shelf near the foot of the cellar stairs.

If the cellar has several windows, plenty of light is provided. Shades or wooden shutters can be placed at every cellar window. The shades will keep out the light when not needed. The shutters will keep out both the light and the cold. Too much light is not good for canned or stored fruit, and vegetables.

The closet for canned and preserved fruits and vegetables should be built in the darkest corner of the cellar. The doors of the closet should fit tight.

The cellars of many farmhouses are used as refrigerators during the summer months, and a storage-room for vegetables and fruits, fresh and canned, in winter; while shelves or boxes hold jars and crocks the year round.

The cellar stair is held in respect by every member of the family. This respect is due many times to the fact that the stairway is dark and the steps are rickety.

If the floor is earth, lay a bed of gravel and sand, about three inches deep, on the floor, and cover with well-mixed concrete. When it has dried you will find it will make a durable and satisfactory floor if it has been laid properly. Don't stop there, but build some forms for generously wide, easy steps at the entrance of the cellar.

In the best-ventilated part of the cellar build shelves for milk, cream, and butter. Paint makes the best finish, and if the shelves are built closely enough

together so that the pans will slide in easily, but with only a small space above for ventilation, no doors will be needed. This space will not be sufficient for dust and dirt to settle into the pans.

If the brick walls are cracked or moldy, face them with concrete, or wash them with a solution made of equal parts of hot water and vinegar. This will kill moldy growths. Look after the ventilation, and see if you cannot eliminate further mold growth.

The greater part of the apple, root, and vegetable crops are often buried in pits or placed in a cave. Only small quantities of these crops are placed in boxes or bins in the cellar. Even this is not perfectly satisfactory, for rot and specks soon appear. The newer method of making long, narrow trays for such crops is more satisfactory. Being extremely shallow, dozens of these trays may be built in a small space. Try making them of woven-wire fencing hung on wooden end pieces, and see how well fine eating apples and pears, as well as onions, pumpkins, squashes, and other easily decaying vegetables will keep.

How to Use Canned Goods

THE last half of the fourth paragraph of the article, "How to Use Canned Goods," written by Mrs. R. R. Williams, which appeared in the Housewife's Club in the May 6th number, should have read: "Of course, if desired, the liquid in the can of peas can be used, as it doesn't contain a preservative. If you don't desire to use the liquid, the peas can be rinsed in cold water before heating in butter or cream."

Housewife's Letter Box

Black Gnats—Mrs. A. E. E. of Indiana wanted to know what to do to get rid of black gnats that bother her potted plants. Mrs. H. N. W., Ohio, says:

Black gnats in potted plants are caused by too much moisture in the soil. The eggs are always there, but will not develop unless the plants receive more water than they can absorb. Stop watering only just enough to keep the plants from drying up. Then give a copious application of lime water, several times if necessary. This will not injure the plants and is a good fertilizer. Use either fresh or slaked lime, but the water from fresh lime will be stronger and should be used a little more carefully.

Can anyone tell me what to do to my cook stove to prevent its rusting when not in use through the summer? Have tried kerosene. Mrs. J. R. E., New York.

Rose Design Table Runner



THIS is a table runner made in filet crochet, with rose design. The design, while very effective, is quite simple. For complete directions send four cents in stamps to Fancy-Work Editor, Farm and Fireside, Springfield, Ohio.

Practical Summer Patterns



No. 3076 — Russian Blouse with Sash. 12 to 18 years. Pattern, ten cents



No. 3075 — Men's Outing Shirt with Attached Collar. 14, 15, 16, 17, and 18 inch neck. Price of pattern, ten cents



No. 3073 — Boy's Waist with Detachable Collar. 6 to 12 years. Price of pattern, ten cents



No. 3067 — Slip-on Dress, Perforated for Smock. 34 to 42 bust. Width, two and three-fourths yards. The price of this pattern is ten cents



No. 3064 — Yoke Waist with Box Plaits. 34 to 40 bust. The price of this pattern is ten cents



No. 3065 — Three-Piece Skirt with Tab Pockets. 24 to 30 waist. Width, three yards. Pattern, ten cents



No. 3067



No. 3064



No. 3065

Copyright, 1916, by The Crowell Publishing Company

Recipes

Strawberry and Pineapple Preserves—Take three large pineapples, peel, and cut up so as not to have any core. Now weigh them. Cover with water and cook until tender. Then take eight quarts of strawberries, stem, wash, and weigh them. Having the weight of pineapple and strawberries before being cooked, take one-half pound granulated sugar to one pound of the fruit. Add the sugar to the water in which pineapple was boiled, bring to a good boil, add pineapple and strawberries, and let boil slowly until the juice is thick, being careful not to let it burn. Put in pint glass cans. Be sure to put on new rubbers each year, as the heat spoils the rubber. This quantity will make about eight pints.
E. B. P., Kentucky.

Filling for Sandwiches—Two cans of pimentos, one-half pound cream cheese, one-half pound salted peanuts, mayonnaise to mix. Grind all the ingredients together. This makes an excellent filling for sandwiches.
G. W. C., West Virginia.

Mayonnaise Dressing—Two eggs, three tablespoonfuls of cream, one-fourth cupful of water, one-fourth cupful of vinegar, one teaspoonful of mustard, one-half teaspoonful of salt, two tablespoonfuls of sugar. Beat eggs, add cream, mix balance thoroughly, and add slowly to cream and eggs, stirring continually. Cook in double boiler, stirring until thick.
C. O. B., Idaho.

Jam Cake—Three-fourths cupful of butter and lard mixed, one and one-half cupfuls of sugar, three eggs (lay aside whites of two for icing), one teaspoonful of soda dissolved into one cupful of sour cream or milk, one pint of jam (blackberry or raspberry), one teaspoonful of cinnamon, one-half teaspoonful of cloves, one-half teaspoonful of allspice, flour enough to stiffen. Bake in layers. Icing: Boil two cupfuls of granulated sugar until it threads. Beat white of eggs and pour the boiled sugar in, stirring constantly until the desired thickness. Flavor.
C. A. M., Wisconsin.


Beets are always boiled, dropped into cold water, and the skins slipped off as a preliminary to any preparation. They may be sliced and put into a pan with butter, salt, pepper, and a little lemon juice, and set over another pan of boiling water till hot.

They may be boiled, chilled well, cut into small dice and served as a salad on lettuce, with French dressing.
J. V. K., B., Ohio.


Stew chicken for invalids in salted water till tender, pick the meat off the

bones in rather small pieces. Thicken the broth as for ordinary chicken gravy, then add the flaked chicken. Make a batter as follows: For ten cupfuls take one-half pint of sour milk or buttermilk, add a pinch of soda to sweeten, one rounding teaspoonful of baking powder sifted with one cupful of flour, one-half teaspoonful of salt and one heaping tablespoonful of lard rubbed smooth with the flour. Mix with the milk, beat well, then add two well-beaten eggs, add more sifted flour if necessary to make about the consistency of pancake batter. Fill individual cups about two-thirds full of the hot chicken mixture, pour over the top enough batter to cover chicken, but the cups should not be full when put into the oven, as they will rise to the top while baking. Bake until a delicate brown.
C. B. B., Kansas.

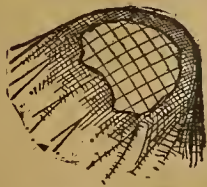
Household Hints

 A putty knife. I find very useful. I like it better than any pancake turner I have ever had. It is also handy in taking up eggs or frying potatoes, and it makes a good scraper for my pans and skillets. It is convenient because of its wide blade and short handle.
MRS. B. H., Texas.

To prevent lamps smoking soak the wicks in strong vinegar and dry well before using. This will make a pleasant light and give satisfaction.
L. R. J., Missouri.

 When a splinter has been driven into the hand, fill a wide-mouthed bottle nearly full of hot water, place the injured part over the mouth and press it slightly. This will draw the flesh down, and in a minute or two the steam will extract the splinter and also the inflammation.
DELL W., Washington.

To Stiffen Eggs—When the whites of eggs for a meringue will not stiffen, either from a little of the yolk being mixed with them or any other reason, add a small quarter of a teaspoonful of baking powder and whisk again. The result will be a firm white snow.
M. H., New Jersey.

 When darning stockings, baste a piece of netting over the hole, then proceed to darn in and out of the net. The result will be a neat patch, and one that will not hurt tender feet.
A. B. R., Illinois.

You and Your Friends—and





10C

You tried it because we told you how good and delicious it was.

But your friends began drinking it because you told them how good it was. This is the endless chain of enthusiasm that has made Coca-Cola the beverage of the nation.

THE COCA-COLA CO.
ATLANTA, GA.

Demand the genuine by full name—nicknames encourage substitution.



MAKE YOUR BIKE A MOTORCYCLE

at a small cost by using our Attachable outfit. FITS ANY BICYCLE Easily attached. No special tools required. Write today for bargain list and free book describing the SHAW Bicycle Motor Attachment. Motorcycles, all makes, new and second-hand, \$35 and up.

SHAW MANUFACTURING CO.
Dept. 88, Galesburg, Kansas.



Shoo Fly Plant

KEEPS FLIES OUT OF THE HOUSE

Flies will not stay in a room where it is grown. Very mysterious, but tests show such to be the case. Blooms in a short time (60 days from planting). Flowers both summer and winter. Package of seed by mail with catalogue, 10 Cents. **JAPAN SEED CO.,** Desk N, South Norwalk, Conn.



ATCO

\$133 TO \$640 CASH

and small monthly payments secures for you any of 150 models of high grade Autos, priced at \$235 to \$1,265. Touring Cars, Roadsters, Trucks and Jeeps, originally costing up to \$4,000

GUARANTEED FOR ONE YEAR

WRITE FOR 144 PAGE FREE CATALOGUE

AUTO TRADING CO., Inc. 5090 CENTER AVENUE PITTSBURGH, PA.

ASK FOR DEALER'S TERMS

“Wear-Ever”

50c Aluminum Stewpan 25c FOR ONLY

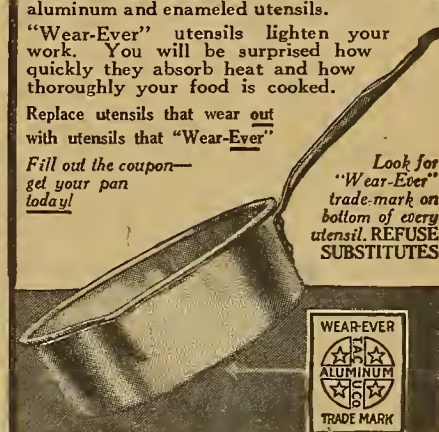
if coupon is mailed on or before July 20, 1916. See for yourself the difference between “Wear-Ever” and other kinds of aluminum and enameled utensils.

“Wear-Ever” utensils lighten your work. You will be surprised how quickly they absorb heat and how thoroughly your food is cooked.

Replace utensils that wear out with utensils that “Wear-Ever”

Fill out the coupon—get your pan today!

Look for “Wear-Ever” trade-mark on bottom of every utensil. REFUSE SUBSTITUTES



Wear-Ever
ALUMINUM
TRADE MARK

The Aluminum Cooking Utensil Co.
Dept. 57, New Kensington, Pa. (or if you live in Canada) Northern Aluminum Co., Limited, Toronto, Ont. Send prepaid, 1-qt. “Wear-Ever” stewpan. Enclosed is 25c in stamps or coin—money to be refunded if not satisfied. Offer good until July 20th, 1916.

Name.....
Address.....

GET A WATCH AND FOB

HERE IS A CHANCE to obtain a handsome and useful watch and a fine leather fob with a gilt metal charm. FARM AND FIRESIDE guarantees that this fine watch will please you.

DESCRIPTION: This watch has a handsome nickel case, with open face. It is a stem-wind and a stem-set, just like other high-priced watches. It has a close-fitted snap back. It is only 3/8 inch in thickness. It is a perfect timekeeper, tested and regulated before leaving the factory. It is engraved front and back and is a watch of which anyone would be proud.

The Fob is of handsome black leather with a polished buckle, with a rich gilt charm hand-somely engraved. **Act Quick**

MOVEMENT: Regular 16 size. Lantern pinion (smallest made). American lever escapement, polished spring. Weight, complete, with case, 3 ounces. Quick train, 240 beats to the minute. Short wind, runs 30 to 36 hours with one winding.

Every watch is fully guaranteed by the manufacturers and by FARM AND FIRESIDE

The manufacturers will make all repairs for a year free, as explained on the guarantee.

HOW TO GET THE WATCH

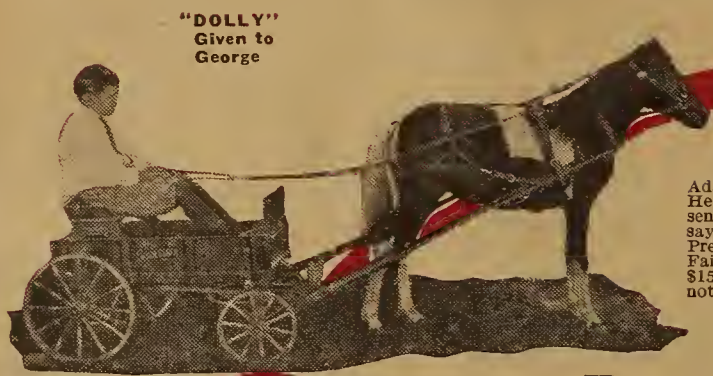
You can get this dandy watch and fob very easily. Write a postal card to the Watch Man. Tell him you want to get this watch and fob without spending one penny. He will be glad to help you get your watch. This is a chance you must not overlook.

Thousands of delighted men and boys have secured their watches this way with the help of the Watch Man. You can do it, too. Any one that really wants a watch can easily do the little task that we require. Just send your name and address to the below address. To-day is the time to act.

Write a Postal To-Day to **THE WATCH MAN**
FARM AND FIRESIDE, Springfield, Ohio



All These Ponies Given Away to Boys and Girls



"DOLLY"
Given to
George

This is George Edwin Adams of New York State. He sent me his name and I sent him "Dolly." George says "Dolly" took the first Premium at the County Fair, and he was offered \$150 for her, but he would not sell at any price.

Edwin Larson sent me his name and received "Early Bird." Edwin says "Early Bird" is a fine name for his pony because he and his friends go for early morning rides in the summer. Edwin lives in Worcester Co., Massachusetts.



"EARLY BIRD"
Given to Edwin



"HEINIE"
Given to
Clarence

Clarence Niemoeller, Bartholomew Co., Indiana, sent me his name and I sent him "Heinie." Clarence says, "I would not take \$1000.00 for 'Heinie' for I have more pleasure out of my pony than I would out of the money."

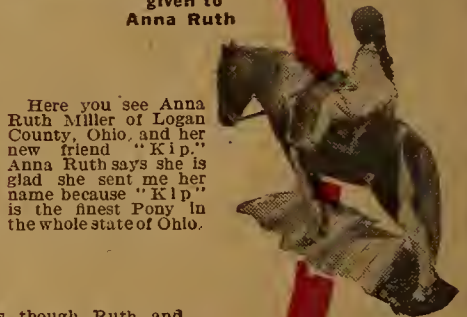
READ about these beautiful Shetland Ponies I have given away to boys and girls, all over the United States. Besides these eight shown here, I have given away more than 375 others. Now, I am going to give away several more Ponies—some of the finest Shetland Ponies I could buy—and I want every family that reads this paper to have an equal chance. If you are a boy or girl, send in your name, and if you are the father or mother of a boy or girl be sure to send your child's name. Remember, no charges of any kind and nothing to buy. Just send in your name.

Every Boy and Girl Has the Same Chance to Get a Pony



"TRUSTY" Given to Raymond

Raymond Krueger lives up in northern Minnesota, where there is much snow. However, Raymond doesn't worry since I sent him "Trusty." If Raymond had not sent me his name, he wouldn't have "Trusty" now.



"KIP"
Given to Anna Ruth

Here you see Anna Ruth Miller of Logan County, Ohio, and her new friend "Kip." Anna Ruth says she is glad she sent me her name because "Kip" is the finest pony in the whole state of Ohio.



"PAT"
Given to Flossie

Little Flossie Meredith looks as though she is training for a circus, but she is just having good times with "Pat," the pony I sent her. Flossie lives in Jasper Co., Iowa.

Children Don't put off this chance. Don't wait. Write it out and send it to me. I will then send you the beautiful free Pony Picture Book and you will have an equal chance to receive one of the Real Live Ponies that I am going to give away soon. You stand just the same chance as any other child, and it doesn't cost you a cent. Get a pencil and write your name now.

Parents Please show this offer to your child and send in the Coupon. You will be interested in the free Pony Book I send and your child will enjoy it immensely and profit by it. I receive many letters from children telling me how they enjoyed reading the book. Besides, your child may win one of the Shetland Ponies I am actually giving away this season. Your child stands the same equal chance as any other child, no matter where you live.

Pony Book Free

Here is a wonderful Pony Picture and Story Book. It tells the stories of hundreds of children and the Ponies I gave them. It tells how the children won them, how the Ponies were shipped to them and the good times they are having with them. I will send a copy of this wonderful Pony Book free to every Boy or Girl who really wants a Pony and who sends in his or her name. Write your name in the Corner below and mail it to me right away.

The Pony King 591 Webb Bldg.
St. Paul, Minn.

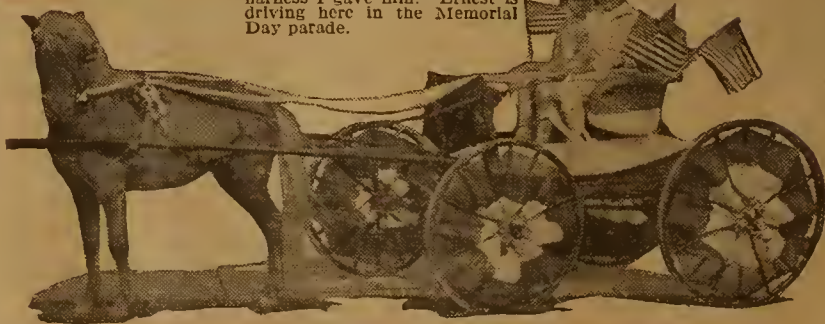
Pony
Picture
and
Story
Book



"MAC"
Given to Ruth

It looks as though Ruth and "Mac" were also training for the circus. Ruth says he sticks his nose into a bag of pop-corn whenever he sees a pop-corn stand. Ruth Mead lives in Saline Co., Missouri. She sent in her name and received "Mac."

"DAPPLE" given to Ernest Ernest L. Heckert of York Co., Pa., saw my advertisement and sent in his name. This is the pony "Dapple" and the buggy and harness I gave him. Ernest is driving here in the Memorial Day parade.



THE PONY KING, 591 Webb Bldg.,
St. Paul, Minn.

Send me the Free Pony Picture Book, containing pictures and names of children to whom you have given Ponies. Also send me pictures of the Ponies you are going to give away soon, and Certificate of Membership, so I can join your Pony Club and get a Pony

My Name is

P. O.

State..... R. F. D.

Cut
out this
Coupon
and
Mail
To-day

3-11/20

76

More Than 600,000 Copies Each Issue

LIBRARY
RECEIVED
JUN 30 1916

U. S. Department of Agriculture

FARM *and* FIRESIDE

The National Farm Paper - Twice a Month

ESTABLISHED 1877

5 cents a copy

Saturday, July 1, 1916

Eastern Edition



PHOTOGRAPH BY CLARENCE A. PURCHASE

Reminiscences

The Editor's Letter

So a Young Man Can Get a Farm of His Own



WHEN the Goodyear Service Station Dealer talks to you about Goodyear Tire Accessories, credit him with trying to render a real service.



The Goodyear Service Station Dealer Sign

He will show you that the Goodyear Tire Saver Kit contains materials for making road repairs when accidents occur.

He will test your wheel alignment; he will suggest an Inside Protector if such can add to the mileage of an old tire; he will recommend Goodyear Tire Putty to fill tread cuts and prevent damage from dirt and water.

He sells *tire satisfaction* in addition to tires; he is not content until you are fully and finally pleased.

GOOD YEAR
TIRE ACCESSORIES

Goodyear Tires, Tubes and Tire Saver Accessories are easy to get from Goodyear Service Station Dealers Everywhere.



WHAT a quick-growing, mighty young giant our country is! Yesterday, prairie, plain, great valleys and foothill country stretched away westward practically unoccupied. To-day, all really desirable farming land open to settlement must be sought for diligently. I call myself still a young man, with the fifty-year mile post just behind me, but there were members of my parents' families who made the "trek" to the California bonanza gold mines in '49. Then practically all of our magnificent grain-belt area had never known the plow. As a boy I tasted something of near-pioneer life. Where do you suppose that taste was experienced? Not in the Dakotas or even Minnesota or Michigan, but far east in Pennsylvania. My father, as a boy of twenty-two, emigrated from England and found great stretches of still unbroken forests in Pennsylvania from which he carved a farm of more than one hundred acres. Yes, our country is still very new, and yet our young men keep insistently asking, "Where is there good farm land that I can secure and pay for, for myself and growing family?"

At present this oft-recurring question is coming oftenest from the rich grain-belt States where desirable farm lands are now selling for from \$100 to \$200 an acre. Boys and young men ambitious for success in the grain-belt and fruit-specializing sections are confronted with this high price of land just as soon as the home-making instinct develops in them. I have considered this matter heretofore in these letters, but it is a question in which people are always interested and which is constantly becoming more difficult to answer helpfully. It is so vital that it deserves careful thought from every reader of these columns. Let me ask everyone having any new light on this farm-home problem to write me their ideas on the subject.

The grain-belt farm boy's training and associations lead him to think his farm must be one of the level, deep-soil, fertile kind, free from obstructions and adapted to modern tillage machinery. One boy in northern Illinois says: "I am reading FARM AND FIRESIDE Editor's Letters, and they seem to ring true. I believe the young men readers on the farms ought to get our problems into this forum of discussion. The most perplexing thing that now confronts me is how best to secure a good farm for a home of my own. I am a little past my majority, and know practical corn-belt farming from A to Z so far as raising good crops and good stock is concerned, and I think I know how to keep fertile land from deteriorating.

Capital Totals \$2,000

"I have my future wife picked out, and we are ready to get into the farming game. But here is the rub: the kind of farm I want will cost, with machinery equipment and reasonably stocked with cattle, hogs, and horses, not less than \$25,000 for a quarter-section farm. This means an annual load of interest to carry, at the start, of from \$1,000 to \$1,200, to say nothing of taxes and depreciation on buildings, fences, and equipment. At most my capital for first payment cannot exceed \$2,000. I have never been charged with lack of courage, but I confess I lack nerve to undertake such a move. I have been advised to go to a cut-over land country or dry-farming section. My objection to such a move is that I know corn-belt farming and I don't know the other kind. I shall appreciate any slant you may give on this matter. I know of at least a dozen farm fellows and young married men who are in about the same fix as myself."

When an actual case of this kind confronts us squarely, we begin to comprehend just what modern farming business has grown into on higher-priced land. This young man, still in his early twenties, is a bit ambitious, to put it mildly. Just consider a boy of his age expecting to buy a merchandising or manufacturing business costing \$25,000 on a capital of \$2,000! His \$2,000 would not adequately equip his farm with ma-

chinery and horses or tractors with which to operate it.

I grant that our ambitious, capable young men should not be satisfied with beginning on the slow, plodding basis that was common a few generations ago. But neither should they expect to begin on a par with farmers who have already borne the burden and heat of the day for half a century. No matter how well equipped a young fellow may be with scientific farming aids, it won't do any harm to let him demonstrate that he can make good in the employ of some farmer who has already won his farming spurs.

Instead of considering the purchase of the farm of his ideal with a capital of \$2,000 or \$3,000, "right off the bat," it would be better business for him to find a 60- or 80-acre tract of productive land where, if possible, an option can be had on the remainder of the farm or on adjoining land.

Another similar recent call has reached me from Kansas. An ambitious young newly married man explains his situation thus: "Three years ago, at the age of twenty-one, I married a girl who is just as much of a true-blue farmer as I am. We settled on a good quarter-section grain farm as tenants on a combined cash-rent-and-share basis. The farm is well equipped, and we have succeeded in growing and harvesting our crops much better than I expected.

Wants to Buy a Farm

"The one big thing that disappoints us most is the smallness of our profit after the cash rent and expenses are paid at the end of each year. We thought six years of tenant farming, by pushing production to the limit, would find us in position safely to undertake the buying of a less well-improved farm for ourselves. But instead of six years it will be twelve at the lowest estimate before we should dare undertake buying even a \$15,000 farm. The one we are on is priced at \$150 an acre. I don't like to contemplate ten or fifteen years more of tenant farming and then be only at the half-way mark toward owning a farm of our own. Unless health and good fortune are with us, I can see our struggle continuing for most of our natural lives before we can get from under the load of debt. I am a son of Kansas and like the State, and doubt if there is any use in chasing rainbows into other sections of country."

Both of these letters from ambitious experienced young farmers deal with conditions, and not theories. It is extremely doubtful if either of these men would succeed with cut-over land or cheap, run-down farm conditions. Their training has made them farm manufacturers—in the one case, of beef and pork, and in the other case of grain.

In both cases, I believe these men have the best chances for success in finding a good farm where the landlord will be wise enough to make a liberal long-time lease which will insure building up the farm in fertility, or at least holding it in a first-class state of productiveness, and at the same time enable the tenant to earn the greater part of the value of the farm in the period of fifteen to twenty years. When that time comes, if the tenant and landlord have each given a fair deal, the probabilities are the tenant can become the owner of the farm he has so long operated. Of course, this plan only works when a fair-minded, far-seeing landlord and an equally fair-minded and far-seeing tenant are brought together.

But I cannot close this letter without a word of warning to my two young correspondents. I'm for them and their plans with all my heart, but they must not forget that small beginnings should not be despised. The average prosperous farm is often less than a quarter section, and my advice is: Look for a good eighty, or even forty, and get it on the right basis, and when that is all cleared up go after the quarter section.

The Editor

FARM^{and}FIRESIDE

Published Twice a Month by THE CROWELL PUBLISHING COMPANY, Springfield, Ohio

Copyright 1916 by The Crowell Publishing Company

Vol. 39

Springfield, Ohio, Saturday, July 1, 1916

No. 20

Missouri's Good Roads Days

When a State Sets Aside 48 Hours for Working the Public Highways

By SARA L. LOCKWOOD



This is one of the many road-grading crews that were so conspicuous in Missouri during the two days of the good roadwork

LESS talk and more work will throw a lot more dirt" has literally been the slogan of Missouri since Governor Elliott W. Major in 1913 issued that first proclamation for Missouri's Good Roads Days, which brought together such an army of men and women as had never before in the history of any State co-operated in a peaceful enterprise. While the echo of the proclamation is coming back from the many States which have followed Missouri's example and adopted Good Roads Days, the first formless enthusiasm of the Missouri people has broadened into a steady determination to make their State famous for its good roads as well as for its mules.

The two "working holidays" chosen by the governor out of each year since August, 1913, have done more than bring together the banker, the shoemaker, the artist, and the farmer as common laborers with one interest. They brought together the wives. Governor Major's suggestion, "Let the women of Missouri share in the work and the glory. I therefore call upon them to prepare dinners and see they are served to the laborers along the way," was not an idle one, and the women have answered the call gladly each year. Those days popularized road-making, and turned the minds of Missourians to the study of the road question from its every phase and standpoint. Those days were the seed from which sprang community good roads days. Trenton, Wellsville, Macon, Clayton, and many other towns and communities of Missouri now have their individual days when the roads of the community are put in good condition. Of course, the roads are worked on at all times of the year when the weather is favorable. The results: Investigation shows that where this community road work has been done, invariably there are improved farms, better stock, better homes, better outbuildings. There are better schools and better churches than in districts where public roads are neglected. Farm land is valued higher and people are eager to locate there.

Pioneer Road Apostle Aids Work

THE popularization of the Good Roads Days movement was aided greatly by the work of such a road leader as D. Ward King, a Missourian, and inventor of the road drag that bears his name. Mr. King had been preaching good roads for years.

Missouri's Good Roads Days were not the result of a sudden inspiration, nor of months' or even a few years' study. Governor Major grew up on a farm, and the roads that connected that farm with the rest of the world were dirt roads—many months of the year they were mud roads. Because of the many disastrous experiences he had during his youth the governor vowed that some day he would start a crusade against bad roads. And that was why, on July

nothing short of marvelous. Commercial clubs, agricultural clubs, members of the Missouri State Board of Agriculture, automobile clubs, good roads organizations, religious bodies, labor organizations, and many others issued calls and formulated plans for effective results. The county highway engineers all over the State proved the efficiency and merit of the law creating their offices by doing practical work in formulating and developing plans for managing the army of willing toilers for the common good. Wholesale and retail dealers in farm machinery and road tools loaned large quantities of equipment, including many thousands of new shovels and picks. On these days practically every traction engine of every type available in salesrooms and warehouses were freely offered for use, and these good roads days did more than any series of prior years to prove and popularize the worth of traction machinery for road-making in Missouri.

It was at a banquet in Kansas City shortly before Missouri's first good roads days that Governor Major bantered Gov. George H. Hodges of Kansas and Gov. Lee Cruce of Oklahoma to come to Missouri to see good roads built. Governor Hodges agreed to come if Governor Major would furnish the overalls. Major accepted the offer on condition that Hodges work after he put on the overalls. Governor Hodges not only came and worked, but he started good roads days in Kansas, which have been continued since his term of office expired.

"I would rather," Hodges declared, "see more money go into the permanent construction of roads and less into battleships and things of that sort. Let's bring it right back to Kansas. Let us begin the construction of a great permanent system of rock roads all over the United States, uniting every capital and every city of consequence in these United States of ours. And then we will have more intelligence, better schools, bet-

ter citizenship; we will have that which you and I and all others are wanting—a moral atmosphere that means the safety of the nation."

To Governor Major's mind the dirt road is of the utmost importance, and it is to the dirt road that he turned his great attention. "While we favor the construction of macadam, concrete, rock, and other improved roads because every road that is constructed in the State and passes through a section of the country that produces something is an improvement of which we can feel proud, yet these are not the roads which mean the most to the whole people," he declared. "It is the dirt road—the road which enables Smith, Jones, and Brown to bring more products to the railway stations and to the first markets of the country, the road which enables them to double the size of the haul, make the transit in less time, save wear and tear of harness and wagons and the lives of horses, the road that brings additional hundreds of thousands of acres under cultivation, the road that will increase the value per acre of all the lands through which it passes, the road every tendency of which is to improve community life and make it better morally, civilly, and commercially. Ninety per cent of the roads of the State and the nation are dirt roads. They will ever be in the majority, hence they are most important."

That gave only 30 days to agitate and educate in the state-wide campaign for a new thing in road work in a State having 277,244 farms and a total population of 3,293,335. And it was one of the driest and hottest summers in the history of the Middle West. The way the people of Missouri answered this call to "pick and shovel" was

ter citizenship; we will have that which you and I and all others are wanting—a moral atmosphere that means the safety of the nation."

To Governor Major's mind the dirt road is of the utmost importance, and it is to the dirt road that he turned his great attention. "While we favor the construction of macadam, concrete, rock, and other improved roads because every road that is constructed in the State and passes through a section of the country that produces something is an improvement of which we can feel proud, yet these are not the roads which mean the most to the whole people," he declared. "It is the dirt road—the road which enables Smith, Jones, and Brown to bring more products to the railway stations and to the first markets of the country, the road which enables them to double the size of the haul, make the transit in less time, save wear and tear of harness and wagons and the lives of horses, the road that brings additional hundreds of thousands of acres under cultivation, the road that will increase the value per acre of all the lands through which it passes, the road every tendency of which is to improve community life and make it better morally, civilly, and commercially. Ninety per cent of the roads of the State and the nation are dirt roads. They will ever be in the majority, hence they are most important."

Governors of Two States Work Roads

IN WORKING clothes and with proper equipment, Governor Major and Governor Hodges were foremost among the laborers, helping to make bad dirt roads into good dirt roads.

Jackson County was one of the most enthusiastic and tireless in its good roads movement. The report of R. W. McCurdy of Independence, Missouri, a banker who was appointed by the county court to supervise the roadwork of the county, shows that during those first two road days the total amount of work done was: 266 days' work with teams and graders; 144 days' work with teams and wheel scrapers; 1,136 days' work with teams and slip scrapers; 216 days' work with teams and plows; 3,017 days' work with single hands, using picks, shovels, axes, and scythes; 47 days' work with teams hauling supplies; 13 days' work with steam engines and graders; 1,665 pounds of dynamite used; 82 3/4 miles of roads graded; 78 1/4 miles of weeds cut; 156 hills worked on; 2,180 feet of culverts, from 12 to 36 inches in diameter, put in; 10.5 miles of road dragged; 12 3/4 miles of hedge cut; 30 corners rounded; 21 bridges repaired; and 23 culverts repaired.

The money value of the work done in this one county, if paid for at the current rates for such work, would amount to \$14,780. In [CONTINUED ON PAGE 17]



In working clothes and with shovels, Governor Major of Missouri (left) and Governor Hodges of Kansas were foremost among the workers

Highways to Market

Where Crossroads are Good and the Crops Move Freely

By THOMAS A. LEADLEY

PROPER grading followed by frequent and timely dragging is the solution to the problem of maintaining good dirt roads at small expense in Nebraska and the Dakotas. Outside of the sand-hill area of Nebraska and the hilly lands of the Dakotas but little difficulty need be encountered in maintaining good dirt roads.

In 1915 Nebraska spent \$41.66 a mile for road improvement, exclusive of bridge construction, or more than \$3,000,000 for the approximate 80,000 miles of laid-out roads in the State. Nevertheless, Nebraska still has many miles of ungraded and impassable roads, which indicates that road funds are not always spent most efficiently, and that roadwork is not done properly.

Good dirt roads have been built and maintained in Nebraska, however, at a comparatively low cost. Under efficient supervision and road management in one county in the State, grading has been done at an average cost of \$43 a mile for a season, and dragging has been done at an average cost of \$6 a mile for the season.

This amount is but very little more than the average annual expenditure on every mile of laid-out road in the State, and is strong proof that road improvement need not depend so much on increasing road funds as on more efficient expenditures of those already accessible, and in better road management all around.

No other county in Nebraska offers a better illustration of the low cost of building and maintaining good dirt roads than Polk County, especially during the time when a county highway engineer was employed to supervise the road and bridge work in that county. That period began in the spring of 1911 and continued until the beginning of the year 1915.

Tractors Save \$41.21 a Mile

DURING that time 525 of the 820 miles of road in the county were graded. Previous to the services of the county engineer only 153 miles of road in the county had been graded. During his term of office, contracts were let to grade every mile of road within the boundaries of the county, which shows that the crossroads received attention as well as the main traveled ones.

It is true that the county engineer worked under favorable conditions, for the soil and lay of the land in Polk County are favorable for efficient roadwork; the soil absorbs water rather rapidly, and most of the land is level.

The cost of grading in Polk County was reduced during the county engineer's supervision from \$84.21 a mile the first year, when a steam engine and a few teams were hired to do the work, to \$43 a mile in 1914, when two tractors owned by the county were used to do practically all the grading. Grading in adjoining counties cost from \$65 to \$100 a mile with blade and elevator graders.

The use of the tractors in Polk County reduced the cost of the work one half, and in addition gave much more satisfactory results in the type of grading done. The tractor packs the road more than do teams, and consequently the highway soon becomes in good condition for travel.

In Polk County no work was done with elevator graders, except in low places or where a high grade was required. All new grades were disked and harrowed immediately to smooth and pack them. Newly graded roads were in good condition for travel within a few days after grading. The slope from the center of the road to the ditches was made one inch to the foot and the ditch banks were cut down to permit moving the roadside and thus add greatly to its appearance.

Farmers were hired to drag the roads at a cost of 50 cents a mile per dragging, but no means were used to enforce the dragging. In busy seasons it was sometimes neglected because of urgent field work. In 1913, a dry year, the average cost of drag-

ging the average mile of road was close to six dollars.

Proper drainage is the most important thing in dirt-road maintenance; the surface should be kept well drained and as smooth as possible. Open ditches at the side of a road, a grade built high enough to give a fair slope to these ditches, and the use of the drag after rains make possible the maintenance of good dirt roads.

Grading should be done in the spring and summer so that the road will have time to become packed and smooth before the fall rains come and with them weather that is not conducive to rapid drying.

Government statistics on road-building credit Nebraska with next to the fewest number of miles of improved or permanent road-building of any State, and the impression is quite general outside the State that Nebraska roads are in very bad condition. But there is no occasion for such belief, though there is room for a great deal more improvement in road-building in that State. Probably a misunderstanding of the term "improved" leads to this assumption.

By "improved roads" the government statisticians refer to paved, macadam, and clay and gravel surfaced roads. Of these Nebraska has but 250 miles, ranking just above North Dakota, which has the fewest miles of such roads of any State. However, instead of drawing attention to the amount of poor roads in the State, such a small mileage of improved roads should emphasize the number of miles of good dirt roads and the needlessness of improved roads. Were paved or otherwise improved roads a necessity and an economic benefit for farmers, Nebraska would have more miles of them than she has.

To be convinced of the excellence of Nebraska's dirt roads it is only necessary to travel over them. It is true that when a great deal of snow falls in the winter, and when excessive rains come in late fall, dirt roads become quite badly cut up, but it is surprising in what good condition they can be kept and the manner in which they shed water when graded up well and dragged at the right time.

Bond Question

Good Plans First—Funds Later

By A. J. LEGG

IMPROVEMENT of public roads is a live subject for discussion in this central section of West Virginia. This is largely due to the automobile coming into common use. The man who travels in a car of his own can see the need of good roads as he never saw it before. However, the farmers, whether they use cars or not, have come to understand the need of good roads.

In the past, whenever an effort has been made to get better roads it resulted in a heavy tax and but little improvement to the roads. After so many experiences of this kind it is but natural that farmers take a rather conservative view of any great road-improvement scheme that may be launched, particularly if this scheme involves the issuing of bonds at interest.

The good roads boosters in this part of the country are recommending the bonding of county and district as a practical means of raising ready cash for permanent road improvement. They cite the fact that the people have been spending money year after year on the roads, and because of the fact that they cannot raise sufficient money by taxation we have no better roads than we had twenty years ago.

It is a fact that our roads in West Virginia are not being improved by the system now in operation,

but this is not wholly due to the lack of money. There is no competent supervision and no standard to work to, and we cannot expect much from such a careless management. Neither is it safe to borrow money until some definite plan is worked out.

In one county of this State there is a project before the people soon to be voted upon to bond five districts of the county for \$1,400,000 for permanent road improvement. The old James River and Kanawha Turnpike runs through this county, and it is proposed to spend a large part of the money on this old road and make it a great state thoroughfare.

The roads in which the farmers are most directly interested run directly across this old turnpike, and it is not to be wondered that most up-to-date farmers who live back some distance from this road are opposed to being bonded to pay for a road that they will have little occasion to use.

Tired of Politics

People Demand Real Road Experts.

By E. L. VINCENT

IN a number of ways there has been definite improvement in road-making and road maintenance in the part of the country in which the writer lives—south central New York. For one thing, the

people are coming to see that if they are not to be buried alive under the burden of taxation they must see to it that the roads which are built are properly constructed and made of the best possible quality of material.

This is worth making a note of, for in the early history of road-making here the taxpayers were so glad that at last something was going to be done that they did not pay very much attention to either the quality of material or to the workmanship.

But when roads began to go to pieces in a little while through the action of frost and weather and because they had not been constructed properly or of good material, so that everything had to be done over again, they began to get interested in the real problems of highway improvement. For one

thing, they demanded that the men chosen to look after the road-making interests should be men of ability and integrity, emphasis being laid on the uprightness. They also began to insist that good material should be used in road construction.

Comparatively little new work has been done with us for some time, owing to complications that need not be mentioned here. Suffice it to say that the embargo seems to have been lifted now, so the highway work will be resumed with new zeal. But where old work has been taken up or repairs have been made on roads that were early destroyed by the natural wear and tear of the traffic over them, or by the elements, a better class of work has been done. This shows itself in the more durable kind of stone used and the methods employed in laying it down.

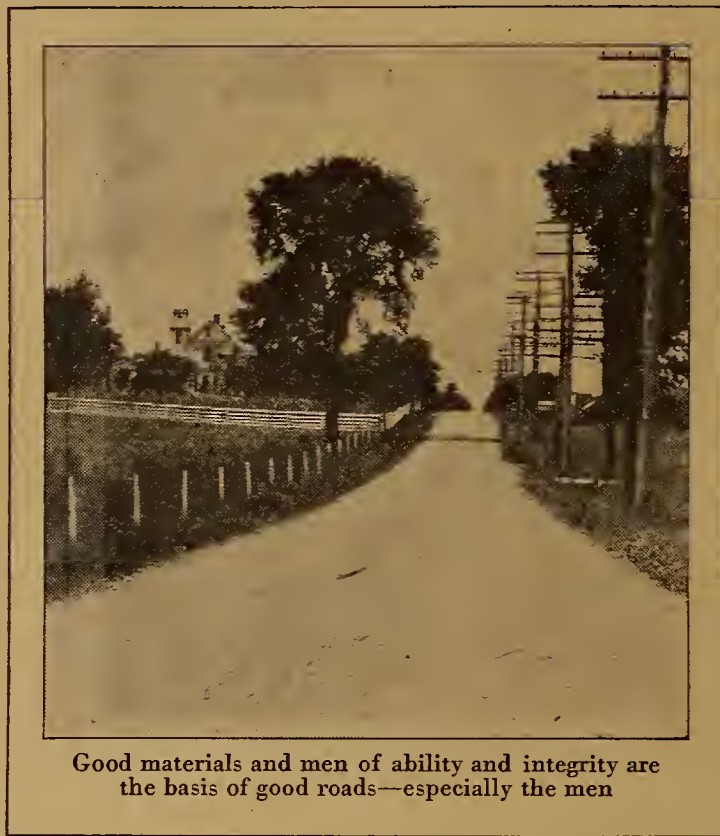
Then, too, the people of the rural districts are showing increased interest in road-making because so many of them are becoming the owners of automobiles. Perhaps this fact has been the leading factor in creating a spirit of liberality, even amounting to community sacrifice in some instances, in the matter of appropriations for highway purposes. When a man gets a nice machine he likes to keep it nice. Everyone has learned that the better roads we have the greater the saving in time and upkeep of vehicles when hauling loads and in moving about from place to place generally.

This change of opinion on the part of the rural sentiment is also apparent in roads that have not as yet come under the laws governing state or county highways, but are still maintained by the local authorities exclusively. The crossroads are kept in a more workmanlike manner. This can be done because our people are coming to understand better the necessities of proper highway construction. So we have better bridges, better sluices, better culverts, and better control of streams.

Knowing that these improvements cannot be made unless the right kind of men are elected or appointed to do the work, more stress is being laid on the qualifications of men for these important offices.

As never before men are seeing that no political standing or favoritism of any kind ought to count in this respect but what a man knows about road-making and road-repairing and his reliability should determine his fitness for office. Good sense, not political pull, counts for most in road construction.

Summing up, then, we may say that the improvement made in this section of the country in the way of building and caring for highways lies in added knowledge and increased interest on the part of the people. Now when a road is made the people are watching to see how the work is done and that the right kind of material is used. Heavy taxes have forced the taxpayers into giving greater attention to the men in charge of public work, for self-protection.



Good materials and men of ability and integrity are the basis of good roads—especially the men



Here is a concrete bridge that easily holds up the heaviest motor trucks and every other kind of load. Floods don't affect it

Builds Better Bridges

Iowa Has Nearly 500 Modern Designs—and Uses Them

By E. W. LEHMANN

WITH the advent of power farming with tractors and grain separators, it became dangerous for the farmers of the Middle West to attempt to pass over the old type of bridges. Many serious accidents have occurred during the last few years. In Iowa alone, 14 engines and threshermen outfits crashed through bridges during the months of July and August, 1914.

Besides being prominent in agriculture, Iowa is now becoming one of the leading States in the construction of adequate bridges. This part of highway construction is of vital importance to the public, and those who are best informed realize that the bridge of to-day must be of a different type than that of twenty years ago. All through the Middle West can be found scores of bridges made of wood, steel, and concrete that are too light for the present traffic.

The wooden bridges that we find in use are perhaps the most extravagant of all types of bridges. They are not only dangerous but very expensive to keep in repair. Many such bridges have cost much more than a permanent structure in repairs and damage suits. Quite often they are being replaced by a fill and concrete culverts.

While there are still a great many wooden bridges over which travel is dangerous, the condition can usually be detected and danger avoided. Such is not the case with many of the old bowstring bridges and light steel trusses. The danger may be as great, but it is not so apparent until a heavy engine suddenly crashes through the floor or the whole structure collapses.

Rust is the chief agency in causing the failure of steel in bridges. High water, due to excessive rains, also destroys a great many bridges. The light steel and wooden bridges are affected more by high water than the heavy structures; many of them, in fact, are so light that they float on the surface of the stream. The failure of concrete bridges has been found to be due in most cases to insufficient foundation and improper reinforcement. There is no record of a properly designed and constructed concrete bridge being destroyed.

Strength is the Main Slogan

THE bridge work of Iowa is entirely under state control. The state highway commission has general supervision over all bridge improvement, and must approve all plans, specifications, and contracts for bridge work costing more than \$2,000.

It is the duty of the board of supervisors of each county to construct all bridges and culverts. Each county also has an engineer who supervises the work. This puts the actual spending of the money into the hands of local men, the highway commission simply acting as a check. The district engineer inspects the new bridge and checks up the work of the contractor and bridge foreman.

Strength, durability, and beauty are the three essentials kept in mind by the designers of the new bridges of Iowa. New standards for both concrete and steel structures have been developed. Nearly 500 standard designs were furnished the different counties of the State during the past year.

Concrete bridges, especially those having several arches and concrete railings, are among the most attractive. Captain Head, a wealthy landowner of Green County, made substantial contribution to the bridge fund of such a bridge, which is called the Head Memorial Bridge. It consists of two spans, each 55 feet in length, with an 18-foot roadway. The footings are carried down six feet, and rest upon solid foundations. The contract price was \$6,176.85, a unit price of \$9.23 per cubic yard.

This bridge is not only a handsome structure but is heavy, well built, and permanent. It has ample room to take care of the water, and has been relocated to improve the carrying capacity of the stream, to make a better foundation, and to avoid a dangerous turn on the roadway. Bridges of this type have been criticized as being too massive and too expensive, but critics are beginning to realize that a concrete bridge to be permanent must be heavy and well reinforced.

An investigation of a great many of the bridges of the State show that failures are due to the following causes: Foundation areas too small; not carried down deep enough; inadequate reinforcing; wall sections too thin; wing walls inadequate; members so placed that stream erosion and frost upheaval takes place; and inferior materials and workmanship. With these points in mind the present designs are made.

Some other common bridge designs of concrete are: The slab bridge with span of 16 to 25 feet; the girder bridge with span of 16 to 60 feet. For spans of less than 16 feet a box or arch culvert is recommended.

In a great many localities it is better economy to use steel bridges rather than concrete, but the

E.W.

steel trusses of to-day are a striking contrast to the steel bridge of a few years ago. They are made very stiff and rigid, with sufficient strength to carry reinforced concrete floors. Many are provided with special expansion bearing.

In spans of more than 40 feet the first cost of steel is usually less than for concrete. Steel bridges must never be neglected; they must be painted regularly, and if a plank floor is used it should be watched.

There are several types of steel bridges recommended: the steel I-beam for spans up to 30 feet in length, the plate girder for spans of 20 to 80 feet in length, riveted pony trusses for spans of 30 to 100 feet, and riveted high truss for spans 100 to 140 feet. There are more of the riveted pony-truss span steel bridges with concrete floor and abutments being built in the State than any other type.

A typical pony-truss span is shown in illustration. It is a much heavier type of steel bridge than we are accustomed to see, but this is necessary with a concrete floor. The maintenance of plank bridge floors is expensive under best of conditions, and it has been found it is cheaper to build strong enough for concrete.

Iowa people are fast realizing that it is greater economy to build a permanent structure of high first cost than to pay a low first cost and a high yearly upkeep on a temporary wooden or steel structure.

Welcome to Farm

Let Your Driveway be an Invitation

By CARLTON FISHER

THERE are roads—and good roads too—not found on the road maps. I encountered such a road the other day, branching off from the main pike. It was as smooth as the pike and, being nicely shaded by trees (the day was warm), I decided to follow it and then make a record of its course on my motor map.

Though this delightful road was somewhat narrower than most country highways, I had no misgivings until rounding a curve at a good clip I ran through a gate right into a farmer's barnyard swarming with little chickens. They flocked to meet me in a manner much too friendly for their own safety.

A young woman's face peeked from behind a curtain of the house, and from the expression I judged

that I was not the first one who had mistaken their private lane for a public road. However, there was plenty of room to turn around and I made a safe get-away, miraculously missing the chickens.

The "house by the side of the road," so famous in poetry, really has few advantages over the house set back from the road; and it has a number of disadvantages. Setting a house back from a main traveled road gives it seclusion and privacy, freedom from noise and dust, less annoyance from tramps, usually greater attractiveness, more safety for children.

There are other obvious advantages, including in many cases better drainage, which is coming to be an important matter as we think more seriously about modern plumbing and sewage disposal for country homes.

Another consideration is the city buyer. "My farm lane and gateway will cost me about \$200," the owner of a small farm remarked the other day, "but

I am expecting to make it a profitable investment nevertheless." He already had built two massive stone gate posts, setting the base of the posts three feet in the ground. The stones were from the foundation of an old house lately moved, and required only a small amount of preparation. He showed me how he was going to line the driveway with an evergreen hedge. A cement sidewalk was to be laid beside it, and the roadway graded.

"It is all work I can easily do in my spare time," he explained, "and this is why I am going to all the trouble. In the first place it will make the farm attractive as long as I live here, and we shall all enjoy it. But here we are only about a mile from the present city limits and some day a city

man will be looking for just such a place as this. "He will be glad to pay extra for property which is as attractive and which has a prosperous-looking approach. If I set our shrubbery and a small hedge now, it will be well established by the time I am ready to sell, and will save the purchaser several years of waiting."

Another farmer has this year set out a thousand barberry plants along the roadway leading to his house. This year they will not amount to much, nor perhaps next year, but by the time other improvements are completed those barberry bushes will be in flourishing condition.

Another farm family with an eye to beauty has cedars planted along the land.

Put Gravel in Slough Holes

IN ALL the cases I have mentioned the roadway has been of gravel, which is perhaps the most satisfactory material easily obtainable, barring concrete. If the surface is drained to a small ditch at each side and kept well crowned, it will bear traffic at all times of the year. Of almost equal consideration are the roadways between the different fields. I have seen wagons loaded with grain sink halfway to the hubs in soft ground, especially near spring holes, when a load of gravel distributed there earlier in the season would have made a firm surface.

The practice of lining driveways and the approaches to gates or buildings with whitewashed stones seems to have fallen off in popularity. As a rule, stones do not keep an ordinary whitewash coating very well. But an Ohio farmer, whose principal gate posts are of concrete, whitewashes them every spring, and each year the whiteness becomes more permanent. The concrete posts are more pleasing in appearance than the stones, are more easily seen at night, and look a trifle more up-to-date.

Here is the government formula for making weather-proof whitewash:

1. One bushel of quicklime; slake with twelve gallons of water.
2. Twelve pounds of rock salt dissolved in six gallons of boiling water.
3. Six pounds of Portland cement. Pour 2 into 1 and then add 3.

NOTE: Alum added to whitewash prevents its rubbing off. Use an ounce of alum to a gallon of whitewash.

A pound of common bar soap dissolved in a gallon of boiling water and added to five gallons of thick whitewash will give it a gloss resembling that of oil paint.

EDITORIAL NOTE: For information on concrete construction, construction of driveways, and selection of shrubbery and trees for making farm approaches more attractive address the Landscape Editor, FARM AND FIRESIDE, Springfield, Ohio.



This style of bridge is known as the pony truss. The floor and abutments are of concrete



What you see here is only a beginning. An ornamental metal gate will replace this wooden one, and an evergreen hedge will line the lane on both sides

Barrett Money Savers for Farmers

BARRETT Money Savers will solve many of your problems, and save your time and money. Good dealers almost everywhere carry them in stock.

EVERLASTIC is a splendid "rubber roofing". It is just what you need. Tough, durable, weather-proof and inexpensive. No better "rubber roofing" could be made at the price. Very easily laid. It will solve your roofing troubles. Made in one, two and three ply weights. Be sure to ask for it the next time you go to your dealer's.



THEN there is Everjet Elastic Paint—the best carbon paint ever made. Everjet has saved many a dollar by keeping "ready roofings" in first class condition. It is elastic and expands or contracts to meet temperature changes. It never peels, scales or cracks. And as a roof paint Everjet stands alone. It has great covering capacity—therefore, it is not expensive to use. Absolutely waterproof—therefore, protects against leaks and weather. You should never be without Everjet.

CREONOID is the most effective lice destroyer and cow spray ever made. Spray your live stock with Creonoid and they will be happy and healthy. Creonoid makes care-free horses—cows that give a generous yield of milk—and clean, good-laying hens. A little Creonoid sprayed in the piggery helps make profitable porkers. Follow directions carefully.



Barrett's
Grade One
Liquid
Creosote Oil

NOW those fence posts of yours would not have rotted if you had used Barrett's Grade One Creosote Oil. It has been proved that this wonderful wood preservative will keep fence posts and timbers rot-proof for twenty years. Don't think of putting wood into the ground without treating it with Barrett's Creosote Oil. It penetrates farther into the wood than any other preservative. It also lasts longer. And it is so easily applied. Use it wherever wood is exposed to dampness, earth or weather. It saves you money.

MANY a leak in your purse is caused by neglecting the little everyday repairs or else by paying too much to make them. Play safe. Have Barrett's Elastigum—the wonderful, waterproof cement. It makes those little necessary repairs easy and cheap. And they are permanent too. It's just what you want for joining and relining gutters of metal or wood. It seals leaks and joints. The best thing you can use for chimney flashings. Elastigum is waterproof so that any joint sealed with it stays sealed.



YOU could improve the appearance and wearing qualities of every one of your steep-roofed buildings by using Tylike Shingles. These shingles deserve your consideration for several reasons. They are very beautiful, being made in rich forest green and an attractive red, without any artificial coloring. They are waterproof in themselves and need no painting. They are fire-resisting—a very important point. Tylike Shingles are made of crushed slate on a tough waterproof base. They are laid like slate, but look better and cost less. Try some and see for yourself.

For sale by good dealers everywhere. Booklet free on request. Address our nearest office.

The **Barrett** Company

New York Chicago Philadelphia Boston St. Louis Cleveland Cincinnati Pittsburgh Detroit
Birmingham Kansas City Minneapolis Salt Lake City Seattle Peoria
THE PATERSON MANUFACTURING COMPANY, Limited: Montreal Toronto
Winnipeg Vancouver St. John, N. B. Halifax, N. S. Sydney, N. S.

CIDER Making Pays

With Mt. Gilead Hydraulic Cider Presses

Thousands are making Big Money with our presses—why not you? Sizes 10 to 400 bbls. daily; hand or power. Cider evaporators, apple-butter cookers, vinegar generators, filters, etc. Fully guaranteed. All power presses have steel beams and sills. Catalog Free.

HYDRAULIC PRESS MFG. CO.
106 Lincoln Ave. Mount Gilead, O.
Or Room 119 D, Cortlandt St., New York, N. Y.

SELDOM SEE
a big knee like this, but your horse may have a bunch or bruise on his Ankle, Hock, Stifle, Knee or Throat.

ABSORBINE
TRADE MARK REG. U.S. PAT. OFF.

will clean it off without laying the horse up. No blister, no hair gone. Concentrated—only a few drops required at an application. \$2 per bottle delivered. Describe your case for special instructions and Book 8 K free.

W. F. YOUNG, P. D. F., 23 Temple St., Springfield, Mass.

HARDER SILOS

have been for 17 years the recognized Leaders, used by the most prominent dairymen, copied by competitors.

They keep the silage pure and sweet in coldest weather, save all the corn crop, give universal satisfaction. Storm-proof, solid as an oak, doweled staves, sealed joints.

Illustrated Catalog tells of distinctive Harder features.

HARDER MFG. CO.
Box 16, Cobleskill, N.Y.

Send for Free Catalogue



FACTORY to RIDER

Saves you big money. Buy direct and save \$10 to \$20 on a bicycle.

RANGER BICYCLES in 94 styles, colors and sizes. Greatly improved; prices reduced. Other reliable models, \$11.95 up. **WE DELIVER FREE** to you on approval and 30 days trial and riding test.

Our Big FREE catalog shows everything new in bicycles and sundries. A cyclopedia of information which every person should have. Write for it. **TIRES**, lamps, wheels, parts and supplies at half usual prices. A few good second hand bicycles taken in trade \$5 to \$8 to clear.

Do not buy a bicycle, tires or sundries until you write and learn our wonderful new offers, low prices and liberal terms. A postal brings everything. Write now.

MEAD CYCLE CO. DEPT. H-83, CHICAGO

Only \$2 Down
One Year to Pay!
\$24
Buys the New Butterfly Jr. No. 2. Light running, easy cleaning, close skimming, durable. Guaranteed a lifetime. Skims 95 quarts per hour. Made also in four larger sizes up to 51-2 shown here. It saves in cream, postal brings free catalog, folder and "direct-from-factory" offer. Buy from the manufacturer and save money.

ALBAUGH-DOVER CO. (12)
2139 Marshall Blvd. CHICAGO

95 ON TRIAL
\$15
American
FULLY GUARANTEED
CREAM
SEPARATOR
A SOLID PROPOSITION to send new, well made, easy running, perfect skimming separator for \$15.95. Skims warm or cold milk; making heavy or light cream. Bowl is a sanitary marvel; easily cleaned.

ABSOLUTELY ON APPROVAL

Different from picture, which illustrates our large capacity machines. Western orders filled from western points.

Whether dairy is large or small write for handsome free catalog. Address:

AMERICAN SEPARATOR CO.
Box 4058 Bainbridge, N. Y.



Cavalry Horses

Government Plans to Increase Supply

By JUDSON C. WELLIVER



WASHINGTON, D. C.,
June 19, 1916.

THEY have been talking a good deal about the horse in Congress of late, and the case for the horse and his owner looks rosier than some folks would have us believe. Reports from all over the country indicate that the horse market is getting better—prices are higher and demand more active.

Considering the amount of nonsense about the "horseless age" supposed to be just ahead, here are some facts pertinent:

There has been an increase of over 10 per cent in the number of horses in the country in fifteen years.

There has been a decrease of more than 10 per cent in the number of cattle, hogs, and sheep in the same time.

There are over 24,000,000 horses in the country now, and about 2,000,000 automobiles. Most of the automobiles are owned by people who never owned horses. Outside the cities the part of the auto in "crowding out the horse" is negligible.

Prosperity has sold a powerful number of autos; but, on the other hand, it has caused buggy and carriage builders in great number to report that their business is better than in many years—in numerous cases, that it is the best they ever had.

The motor truck has been investigated by the Department of Agriculture with great care, and the conclusion is that trucks have in comparatively few cases displaced horses. They compete with railroads and trolley lines more than with horses.

There are less than four horses, on an average, to every farm in the country. Motor tractors cannot be economically used on a farm where one tractor will not displace as many as four horses. Therefore the use of tractors is much less menace to the horse than seemed probable when the tractor business first began to be accounted a factor.

From a half million to a million horses have been shipped to Europe for war use. Europe is killing its horses at a fearful rate, and will keep on needing ours after the war. All this is preliminary to explaining what the Government is going to do for horses. There is no doubt that the best horses are going to continue to bring high prices indefinitely. The good horse will compete better with the tractor and motor car; moreover, he is getting fashionable again in cities; and, finally, the increase in the army is opening a much larger market for him in that direction.

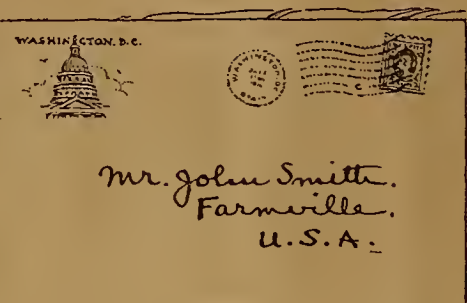
Recently the army authorities made a horse census to learn how many horses suited for cavalry use could be had in the country, and only 250,000 were reported. There has been introduced in both houses legislation to appropriate \$200,000 to provide stallions for breeding horses suitable for army and also agricultural work. Farmers may breed the right kind of mares to them free, by agreeing that the colt may be taken by the army at three years old for \$150; or, if the owner doesn't want to sell at that figure, he shall pay \$25 for the service.

Plan to Distribute Stallions

That sounds as if the Government were going to pay a fair price for its horses; but, in fact, it desires to get more horses of this type raised than will be wanted. The plan is to fill the country with the right sort of horses so that they will be available at any time the Government may want them.

Experiments with government stallions in Colorado and Vermont have brought very good results, especially the work with the Morgan breed in Vermont.

Right now is the time for communities that want to improve their horses cheaply to get busy. Get up the best possible showing for your neighborhood of the number of suitable mares available for breeding on these terms, and send it, preferably through your Congressman, for submission to the right authority. Your chance of getting a strictly first-class stallion located in your community will be excellent, for if



this legislation doesn't pass this year it is almost certain to pass next.

The subject of better military training is also receiving the most thorough consideration. If the war in Europe lasts two years longer—and there is a pretty general belief in the best-informed circles in Washington that it is very likely to do so—it is altogether likely that some form of universal military training will be provided by Congress.

How many people realize that that development would have a more impressive effect on country life even than on city life? How many have tried to estimate the meaning of it and the wide-reaching consequences in rural districts?

Armory Improves the Village

The other day I was in the country with a party one of whose members was a public man who, when at home, lives in a country village. We drove through a crossroads hamlet whose most pretentious buildings were a county high-school building and an armory. The armory looked—because it was by far the biggest structure in many miles—like the greatest pile ever erected. My friend said:

"Here's a village much like the one where I live, and we, also, have an armory. The young men from the village and the surrounding country for several miles belong to the national guard company in our town, and after seeing the thing in operation for several years I admit it has converted me to a firm belief in universal military training. It's the greatest thing for country youth that I have seen since the rural delivery, the country telephone, and modern roads were devised."

He represents a district in a State that isn't strong for preparedness or universal military service, and I was curious for the explanation. He went on:

"Some of us were dubious when they organized a militia company in our village. We doubted the influence of it. Five years after it was started most of the doubters contributed to help build the new armory. It had proved a social and intellectual center for the community; had helped get us all acquainted with each other.

"I am certain that in the country such an organization is worth more than in a city in these directions. We have better dressed, smarter, better set-up young men. They talk more serious affairs. They study the war nowadays, and have quite a library of books about it. That has led them into consideration of social and economic questions that the war naturally brings forward."

Another public question which continues in interest is rural credit legislation, but I heard an argument against it the other day that doesn't appear to have been used by any of the critics of that measure. It was stated thus by a man who has studied the measure carefully:

"This bill provides that the government land banks will loan on first mortgage up to 50 per cent of the land's value as appraised. I hope it passes, and I'll tell you why.

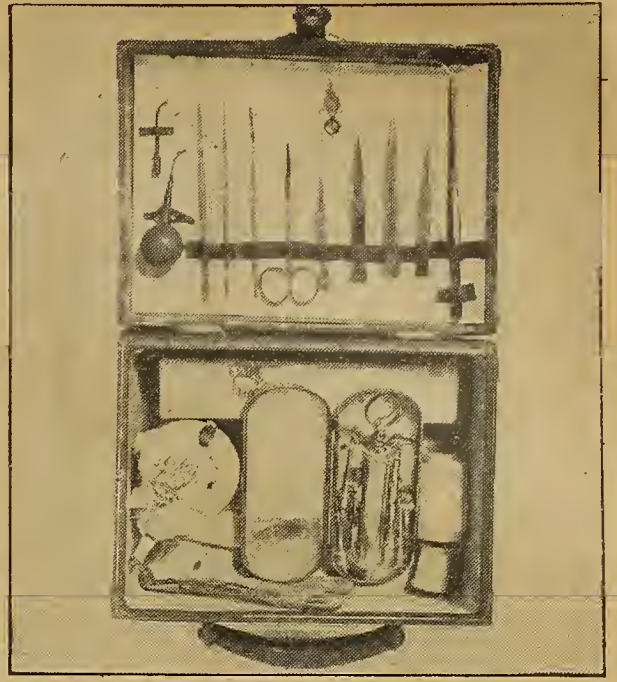
"I own a big tract in a Southwestern State that cost me \$5 an acre. It is worth \$12 now; would readily appraise, and is taxed on that basis. But there are millions of acres more just like it, and no sale. Interest and taxes are costing me a lot of money annually.

"If this land-bank measure goes into effect I shall have that land appraised, borrow \$6 an acre on it—which is \$1 more than I paid for it—and then deliberately let it go under the mortgage. I know a number of other speculative holders who plan doing the same. I'd rather take \$6, or even my original \$5, per acre than to carry it any longer. There are millions and millions of acres that would be treated in just that way. The worst trouble is that politics would get into the business and the regions that wanted money would get it; and would, I am afraid, prove the very ones in which it would be most dangerous to lend it."

All of which sounds like a telling argument against the land-bank plan.



Here is a six-acre plot of Buffum's No. 17 Winter Wheat that yielded 72.4 bushels to the acre. This variety has proved hardy as far north as Saskatoon, Saskatchewan



This kit shows the principal pollinating instruments used for making grain crosses

MORE bread! More bread! That has been the cry of the growing human race since the days of the Pharaohs.

The answer to the cry for more bread must come through more intensive farming methods and from more prolific grains.

To grow not more acres of wheat but more wheat to the acre is the problem. Proper tillage, fertilizers, and rotation of crops are doing half the work; much of the other half has fallen to the lot of a spectacled professor out in Wyoming—B. C. Buffum. He is breeding and developing the grains that will produce more to the acre than the old sorts.

Like Edison and Marconi, Professor Buffum is a practical scientific producer of results. We have other great plant breeders in this country—Burbank, Webber, Van Fleet—but none has done so much toward gratifying the cry for bread.

Not to go too technically into the theories of Mendelism, it is sufficient to say that Professor Buffum has caught and harnessed that strange power of Nature to produce variations, sports, and mutants in the course of her evolution. He has by means of cross-fertilization produced variations which are now reproducing themselves in a form that is strictly true to the new type.

Professor Buffum spent four years studying the matter of location for his seed-breeding farms. He wanted a location in the mountain region with favorable conditions of soil and climate, but far enough north to bring out only hardy products. He wanted abundant water for irrigation and also land for the development of drought-resisting seeds for dry farming. The most suitable combination of these conditions was found in the Big Horn Basin, Wyoming, at an altitude of 4,000 feet, where the annual rainfall is only six inches.

An Improved Winter Emmer

IN THE summer of 1907 Professor Buffum obtained two quarts of winter emmer from the U. S. Department of Agriculture. In the spring of 1908 he found that only 72 plants had survived, among the survivors being a few which seemed to be of a different type, with large coarse-growing straw and very large

New Grains From Old

Skillful Cross-Breeding Develops Promising Varieties

By ROBERT E. MOULTON

composite heads which were different in appearance and of darker color than the ordinary ones.

These plants were used by Professor Buffum as the basis of an improved strain of winter emmer. With this as a basis the seed was replanted and subjected to many experiments to increase its drought and winter resisting qualities. It is perhaps the most drought-resistant and prolific of all small grains, and has been successfully raised from Montana to Mexico, and is being planted in Louisiana to replace oats because it is not affected by rust.

Some of the yields recorded are enormous, varying from 40 to 104 bushels to the acre under dry farming, and as high as 152 bushels per acre under irrigation.

In appearance the grain somewhat resembles barley, as it is bearded and the berry is held tightly in the hull, which further increases its feeding value. The hull is dark in color, and the heads large and heavy, in some instances six or seven inches long and containing half an ounce of grain. The improved emmer is planted in the fall, which enables it to take advantage of the winter moisture, and mature with the minimum amount of irrigation or rainfall the next season.

Professor Buffum has also succeeded in removing the heavy beard from the grain by breeding and in further breaking up the species, so that now he has over 40 distinct varieties of beardless emmer on his breeding and increasing plots. He is also changing the improved winter emmer to spring types, and has again experimented with the beardless emmers by crossing the most-promising sorts with improved varieties of wheat and other less-known grains, and some remarkable hybrids have been developed.

One of these, which he calls May Wheat, carries a club-like head resembling emmer, but surrounding the straw are several broad, succulent leaves that remain green until the grain ripens. This plant was

primarily developed for regions like the Pacific slope, where grain is widely grown for hay by dairymen and stock raisers.

Another of these hybrids Professor Buffum has named Ovem. Ovem is an entirely new species of beardless grain resembling emmer in some respects, but differing radically in others, especially in possessing a central

stem like wheat. Feeding tests have proved its high value as a ration for sheep and cattle, the grain being fed directly from the stack without threshing.

Several years ago Professor Buffum imported some Turkey Red Winter Wheat, which is the type commonly planted in the West. When this wheat was growing, Professor Buffum noticed one stalk differing in many ways from all known varieties, principally that the head was over eight inches long, whereas the ordinary Turkey Red Wheat has a head of only four or five inches.

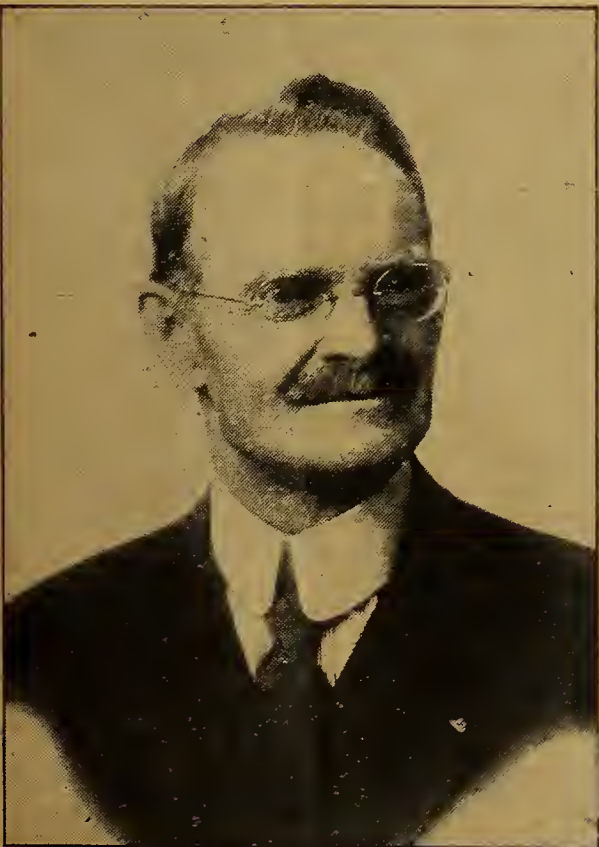
Results are Permanent

FROM this one stalk was developed Buffum No. 17 Winter Wheat. The heavy beard was eliminated and the grains or kernels in each spikelet increased. By subjecting it to extremely cold, dry winters he caused this wheat to become extremely rugged and drought-resistant. Its hardiness, together with its remarkably large head, gives promise of a splendid new wheat for the West.

In more than two thousand years man has made great changes in cultivated plants and given rise to many varieties, but the greater number of these varieties have come into existence through mere adaptation to soil and climate.

The number which have resulted from direct effort to secure a definite improvement is comparatively small, and yet the improvements made by direct-breeding work have been the most important and lasting of all. The improved wheats by Le Conteur in the Island of Jersey, and by Hallett and Sheriff in England and Scotland from eighty to one hundred years ago, are still standard sorts.

Grains like animals readily respond to skillful breeding, and the varieties so produced are not only of unmeasured economic value but they are lastingly stable.



Professor Buffum has specialized in breeding grains for drought resistance and productiveness



The head at the left is Buffum's new pedigreed Club Wheat. Next to it is his No. 17 Winter Wheat. Other heads are second generation results of crosses between the two

FARM and FIRESIDE

THE NATIONAL FARM PAPER

Published Twice a Month by
The Crowell Publishing Company
Springfield, Ohio

Branch Offices: 381 Fourth Avenue, New York City;
Tribune Building, Chicago.

Entered at the Post-Office at Springfield, Ohio, as Second-Class Mail Matter.

Subscription Price

One year (24 numbers), fifty cents. Three years, one dollar. Extra postage for Canada, twenty-five cents a year.

About Advertising

Farm and Fireside guarantees that its advertisers are responsible and honest people, and that its subscribers will receive fair and square treatment.

Advertising rates and regulations furnished upon request.

July 1, 1916

"Chuck-Hole" Clubs

LYMAN COUNTY, South Dakota, is the home of "chuck-hole" clubs. What is a chuck-hole club? It consists of four or five men or boys one of whom has an automobile. Each member provides himself with a pick, shovel, or spade; they climb into the car and fill every chuck-hole, bad bridge approach, and any other bad spot in their neighborhood that does not require the work of a regular road gang.

Each member agrees to fill at least one chuck-hole a month, and to encourage others to help improve the roads. County Agent Dick Lewallen organized these clubs, thus adding one more item to the list of activities in which county agents may help a community.

Apparently there is nothing about the scheme which will not bear transplanting to any locality that is interested in better roads.

For Better Horses

OUR Washington correspondent makes a suggestion in his letter in this issue that is worth thinking about. Indications are that Congress will make a large appropriation to provide high-class stallions in localities where there are good mares, in order to increase the number and improve the quality of horses. Now is the time for neighborhoods to get in line for their share of this service. It is going to be made cheap and profitable to raise the best colts in communities where these government stallions are placed. When Uncle Sam goes in for this sort of thing he always does it well. Get together the showing for your neighborhood as to supply of good breeding mares, willingness of their owners to co-operate, etc., and forward it to the right authorities in Washington. Your Congressman or Senator will see that it gets to the proper place. First come will be first served, other things being equal.

The Editor's Mail

THE office boy brings to the editorial rooms a big wire basket full of letters three or four times a day. They are opened and separated into piles—those for the poultry editor, those for the live stock editor, others for the machinery expert, and still others for the household editor; letters to Mr. Welliver, letters to Dr. Spahr, letters on every conceivable subject from crop rotation to baby care. A visitor once asked us why we received so many letters, why our readers asked so many questions if the paper was properly edited? Why don't the articles answer the questions in the first place? It seemed a reasonable enough question—but the visitor had forgotten for the moment that no two farms are exactly alike, that no two families have exactly the same problems, that every situation that arises is more or less individual, and that every combination of circumstances has to be worked out with the means at hand. Letters? Yes. Questions? Yes. The more the better: that's the editor's job. He can only

state in the paper the general situation: he wants to help you on your individual problems, if you will let him. Your comment, your suggestions, your help are wanted. Has there been a letter from you recently in the editor's mail?

Uncle Sam's Road Money

WE ARE going to see whether federal aid in building country roads will help or hinder. There are people who seriously have urged that if the Federal Government offers to help to a limited extent the States will build only as much road mileage as is necessary to get all the federal aid, and then will stop. Maybe it will work that way, but it doesn't seem likely. The state interest in roads is nowadays too deep-seated and genuine.

The House passed the Shackleford bill, which provided that the nation give not exceeding \$25,000,000 a year to aid in state road-building. The Senate substituted the Bankhead bill, and passed it, providing that from 1917 to 1921 a total of \$85,000,000 should be

The Schools Consolidate

THE Iowa newspapers tell of the success of a recent consolidation of country schools and the erection of a fine modern schoolhouse and the establishment of a graded school system at the village of Dow City. A territory of 42 sections of land contiguous to the village was taken into the district, which voted \$75,000 bonds. At 4½ per cent these were snapped up, and a premium of \$1,200 paid on the issue.

There had been doubters and determined objectors, and the promoters of the plan adopted a clever scheme to silence or convert these. Representative opponents of the plan were induced to go and visit districts in other counties where consolidation had been effected. They were asked to talk to school patrons, especially to those who had themselves opposed the plan at first. They found almost nobody to criticize—the actual working of the scheme had steam-rolled all opposition out of existence. So the Dow City district carried its bond issue with a good majority.

rural carrier is a deserving and faithful employee, going rain or shine, cold or hot, good roads or bad roads. He is right on the job. Some of them are now driving 50 or 60 miles each day. So have a heart and give this faithful servant six days off, the same as city carriers, and if the Doctor wants his mail let him drive to the post-office on the holidays and he will find the rural carrier at the office for two or three hours to hand out mail to any of his patrons who may call for it. At least it is so here. I would go without my mail on those days before I would be guilty of asking the carriers to make the trip. J. HASTINGS, Florida.

Pioneer Conditions

DEAR EDITOR: On page 8 of your issue of February 26th you quote a subscriber who asks: "Do you think homesteading is profitable?" Allow me to say that I certainly do, just as I think that farming elsewhere is profitable.

I spent two years in Montana just over the line from the Dakotas, and can say that there is considerable land close along the state line which is still open to settlement. Of course there are some crop failures, but they are the exception, not the rule. Such crops as oats, spring wheat, flax, potatoes, and most of the common garden vegetables are grown. Corn is also grown to some extent. To be sure, one could not expect to raise as much corn on an acre there as he could in Indiana, but this crop furnishes considerable fodder and some grain. The winters are cold but not extremely long. Stock thrive on the open range, and usually come through the winter without much feeding. As the range gets taken up more and more, the stock will require closer attention.

Perhaps the crop which thrived best in the section where I was located was potatoes. One small plot produced at the rate of more than 500 bushels per acre, and were sold for \$1.20 per bushel. Wheat produced at the rate of about 40 bushels, oats from 75 to 90 bushels, flax from 16 to 25 bushels.

Lest I be thought to have some ax to grind by writing this, let me say that I do not own a foot of land in that section, nor do I have any friends who wish to sell any there.

J. H. HULETT, Indiana.

Anchor for Last Stump

DEAR EDITOR: In your issue for April 22d I note a request for information "How to Pull the Last Stump." You answered the question well, but the usual advice is, "Borrow one of your neighbor's stumps for an anchor."

The next best plan is the "dead man." A pole set at an angle of 45 degrees is not much of a success if you have a big stump to pull. In order to hold much it is necessary to place three or four poles in this position, each back of the other and anchor from one to the other.

J. F. GORMAN, Washington.

About the Hired Man

DEAR EDITOR: In your issue of March 11th I read an article from a hired man's wife, signed K. M. P., Illinois. She says on the farm the hired man is up at 4 A. M. and out in the field before six. I have been running a farm now thirty-six years, and with very few exceptions I have never called my men before five, and I am always out first, and we do the chores and eat our breakfast and get out in the field about 7:30 or 8 A. M., and the same rule holds good with most of the farmers in this neighborhood. She says when they live in the city her husband leaves home at 6:30 A. M., but she forgot to mention that in order for him to leave at 6:30 he must get up nearly an hour earlier and get himself ready and eat breakfast so he can get off in time. Then he must work in the shop until the clock strikes twelve, go home and eat dinner, and back to the shop when the clock strikes one. When he gets home at 6:15 P. M. he must eat his supper after that, while on the farm, if the men get done at 7 or 7:30 P. M. they have already had time to eat supper long before that. When she says that the farmer charges the same price for lard that the merchant charges, she should not forget that when a farmer takes a jar of lard to the store the merchant pays him in trade and allows him the same price for it that he sells it for, and when a farmer goes to town to do his trading it is just as easy for him to put his jar of lard in the buggy and take it with him as it is to put his purse in his pocket and take that with him.

I worked out on farms myself before I started farming, both in Illinois and Wisconsin, but I never was asked to get up at four o'clock, and I have noticed that many times the men that work on the farm have a far better bank account at the end of the year than those that work in the city.

R. P. RASMUSSEN, Wisconsin.

EW

Thoughts for the Discouraged Farmer

By James Whitcomb Riley

THE summer winds is sniffin' round the bloomin' locus' trees;
And the clover in the pastur' is a big day fer the bees,
And they been a-swigin' honey, aboveboard and on the sly,
Tel they stut in theyr buzzin' and stagger as they fly.
The flicker on the fence-rail 'pears to jest spit on his wings
And roll up his feathers, by the sassy way he sings;
And the hossfly is awhettin' up his forelegs fer biz,
And the off mare is aswitchin' all her tale they is.

You can hear the blackbirds jawin' as they foller up the plow—
Oh, theyr bound to git theyr brekfast and theyr not acarin' how;
So they quarrel in the furries, and they quarrel on the wing—
But theyr peaceabler in potpies than any other thing:
And it's when I git my shotgun drawed up in stiddy rest,
She's as full of tribbelation as a yellor-jacket's nest;
And a few shots before dinner, when the sun's ashinin' right,
Seems to kindo'—sorto' sharpen up a feller's appetite!

They's been a heap o' rain, but the sun's out to-day,
And the clouds of the wet spell is all cleared away,
And the woods is all the greener, and the grass is greener still;
It may rain again to-morry, but I don't think it will.
Some says the crops is ruined, and the corn's drowned out,
And prophasy the wheat will be a failure, without doubt;
But the kind Providence that has never failed us yet
Will be on hands onc't more at the 'leventh hour, I bet!

(By permission of Bobbs-Merrill Company)

spent by the National Government in helping build state roads. The Secretary of Agriculture will control apportionment of the fund, and the Office of Roads will have general supervision of construction all roads in which federal money is invested.

There is considerable difference between the House and Senate plans in detail, but they get to the same place. It is a testimony to the increased interest in roads that this legislation passed both houses by large majorities, whereas a very few years ago it was impossible to get such a proposal out of committee.

It may be good business or bad business for the National Government to invest money in such works of internal improvement. That has been debated since the days of James Madison; but it is certain that whenever public sentiment got sufficiently insistent on the public works the Federal Government has found a way to make the investment.

The present is only a beginning of investment in public roads. If the Federal Government is going to wield most of the worth-while powers in this country, it will have to pay a big share of the expenses; and almost everybody seems nowadays to favor a strong central government.

Our Letter Box

Pig Shakes Its Head

DEAR EDITOR: I saw in looking over an old issue (January 15th) of FARM AND FIRESIDE an inquiry from L. M. R., Iowa, about a pig that would shake its head from side to side and travel in a circle.

A friend of mine had a small pig in town and it acted just that way, and finally they discovered the trouble. One of its ears had mud caked in it, and after cleaning out that ear the pig acted normal and thrived again.

Wish I had noticed the inquiry sooner. That might have troubled L. M. R.'s pig. Hope this may help someone anyway. SAM MILLS, Illinois.

Keeping Chickens Well

DEAR EDITOR: All of my chickens are in good condition now, and laying pretty regularly. I treated the sick ones as you directed, and they all got well but one. G. L. BRINGAM, Massachusetts.

Give Carriers Holidays

DEAR EDITOR: In your issue of May 6th, B. E. Reeves, M. D., of North Carolina sets up a fight against the poor R. F. D. carriers. He says that he is sure the people and he would not demand anything unfair at the hands of our Government. I say, give the rural carriers Christmas day besides the other six days they already get. The

DELCO-LIGHT

"Electricity for Every Farm"



Electricity—The Universal Light

A little over 30 years ago electricity came into use in the lighting of city streets and stores.

Then it was introduced into city homes where it quickly became firmly established.

Then steamships and railway trains adopted it as the most efficient and economical light.

Five years ago it came into use in the lighting of automobiles. Almost at once it superseded all other forms of lighting and became standard equipped.

And now Delco-Light brings electricity with its efficiency and economy to the suburban and farm home—thus extending to the rural districts this greatest convenience of city life.

Delco-Light is a complete electric plant—so compact and simple that it can be readily placed in any home and operated by any member of the family.

It furnishes current for 40 to 50 lights and also provides power for small machines, such as churn, cream separator, washing machines, pump, vacuum cleaner, etc.

Starts on pushing a button and stops automatically when batteries are full.

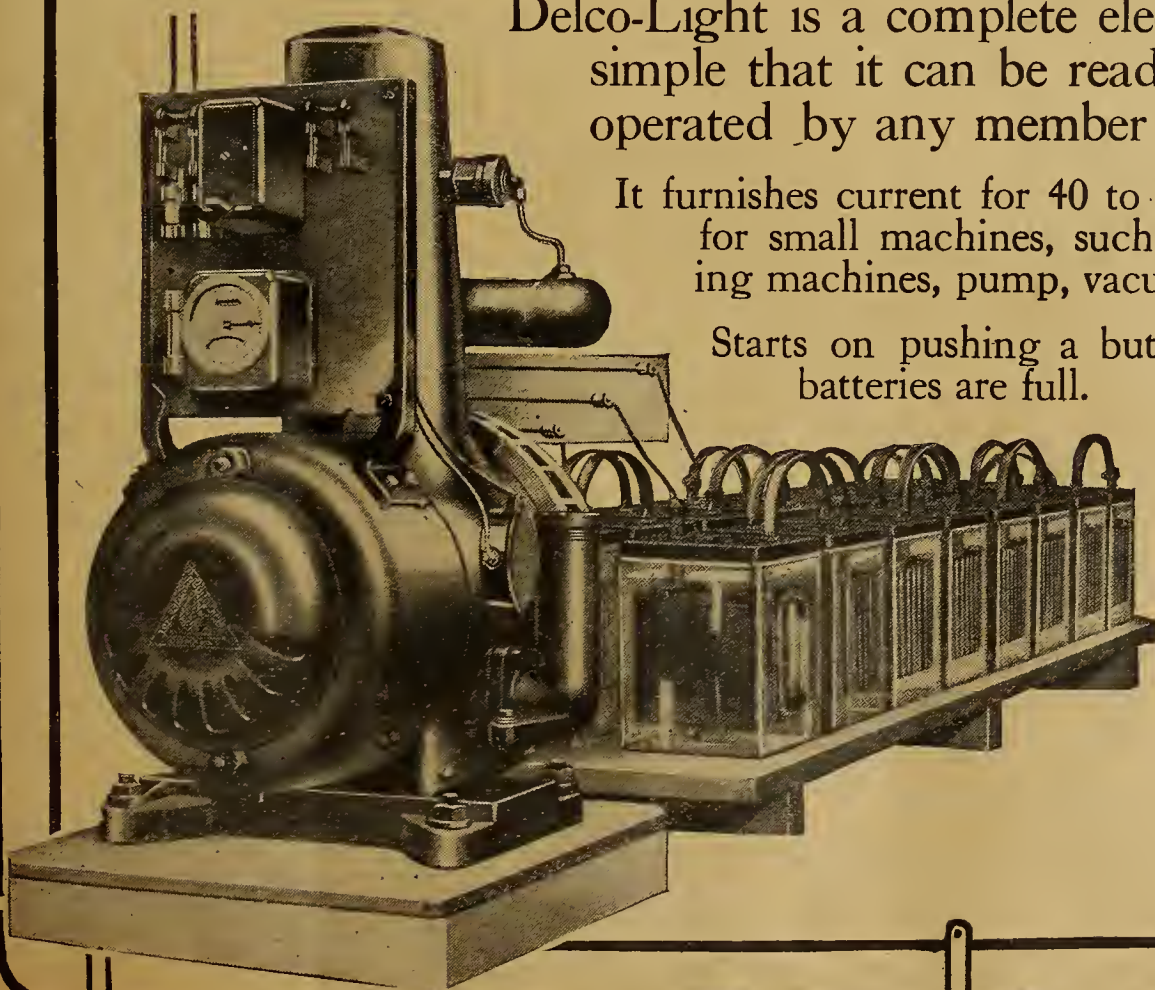
Developed by the same engineering and manufacturing ability that has made Delco Cranking, Lighting and Ignition for Automobiles the standard of the world.

Price complete with batteries \$250

Write today for illustrated folder describing Delco-Light and its uses

The Domestic Engineering Co.
Dayton, Ohio

Offices and Service Stations in all principal cities



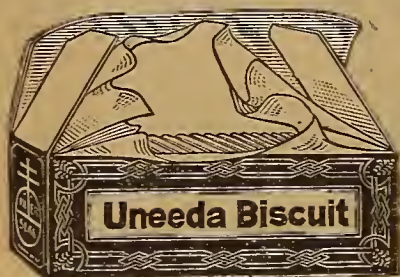


Food For All

National Biscuit Company biscuit is food for children to grow on—for men to work on. Uneeda Biscuit is a most nutritious food made from flour. N. B. C. Graham Crackers are great strength-givers. These and many more well-known crackers and cookies, wafers and snaps, are made by the National Biscuit Company. Choicest materials are used. Preparation and baking are done with utmost skill in absolutely clean, modern bakeries.

These delicious biscuit are delivered to your grocer oven-fresh. You should lay in a supply and have them handy to serve at every meal.

NATIONAL BISCUIT COMPANY



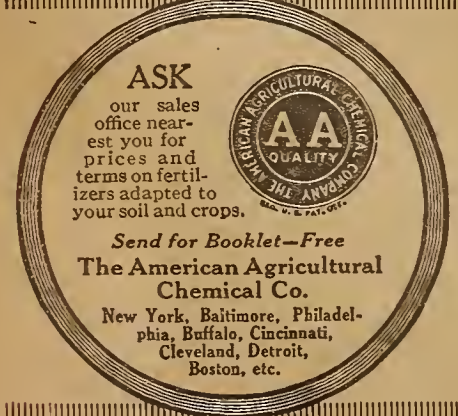
Hydraulic Cider Press Profits

Thirty years' experience enables us to give you all the information you need for cider making. Also Boilers, Engines, Sawmills.

E. B. VAN ATTA & CO., 118 Penn Ave., Olean, N. Y.



Booklet Free \$3 Package guaranteed to give satisfaction or money back. \$1 Package sufficient for ordinary cases. MINERAL HEAVE REMEDY CO., 425 Fourth Ave., Pittsburg, Pa.



Asparagus Plot After Cutting

By S. H. Garekol

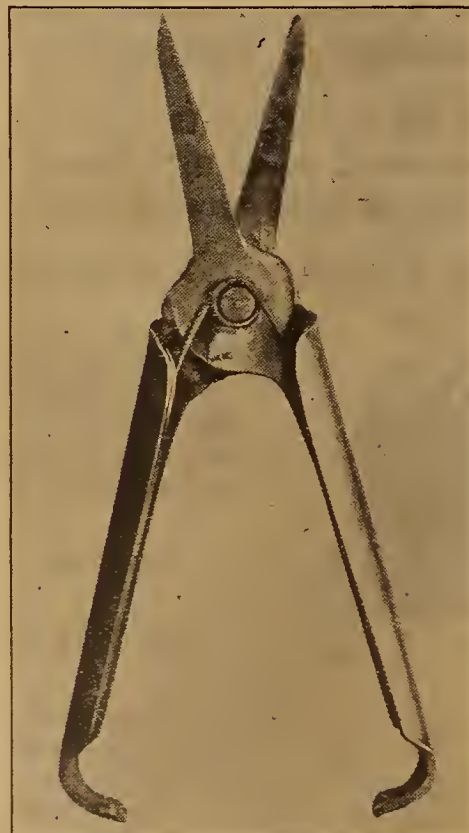
THE asparagus plot needs careful attention after the last cutting. I harrow the beds the same day that the last cutting is made, distributing an application of 200 to 300 pounds per acre of kainit broadcast over them. This supplies the supposed need of the plant for salt and at the same time supplies potash. I cultivate the plot often and thoroughly to encourage and preserve leaf growth, as the size of stalks and the general strength of the plants depend very greatly upon the vigorous growth of the plants. There is some difference of opinion as to the exact time the plants should be allowed to grow. However, growers agree that seedling asparagus is one of the worst weeds in the field. In order to avoid these seedlings starting, it is necessary to remove all old tops just before the berries become fully ripe. When cut I rake the tops in piles and remove them to an open field while still green, and burn as soon as dry. I run a light harrow over the whole field after the tops are cut, as it leaves the field in very good condition for winter and spring, and it may also expose the winter quarters of some insects. Then the beds are manured with well-rotted or very short-strawed manure, for when long-strawed manure is used there will be great damage to the field when harrowing. The manure is lightly worked into the soil in the spring by very shallow surface plowing.

Two Pickles Apiece

By W. F. Wilcox

TWO pickles for every man, woman, and child in the United States will be grown in eastern Colorado this season by the C. E. Frink Cannery of Fort Lupton. This company has already contracted 100 carloads of pickles to the Heinze Pickle Company of Pittsburgh. The Heinze Company pays over \$80,000 for this contract. They will be shipped in tank cars. An estimate of the number of pickles in this shipment is made as follows:

One hundred and thirty casks to the car, with 5,000 in a cask, makes 650,000 pickles in a car and 65,000,000 pickles in the train load. The total production of the Frink Company this season will be 230 cars, requiring over 400 acres for this crop. Allowing the cannery 10 per cent profit on the \$80,000 shipment to Heinze, or \$8,000, this latest and biggest pickle contract ever made in Colorado will bring \$72,000 to land-owners, pickers, cannery employees, and others who may be connected with filling the order.



Thinning shears hasten thinning work, particularly when trees are badly over-loaded and many entire clusters must be removed.

Late Peas Among Corn

By J. T. Timmons

I HAVE found it a desirable plan to plant the tall-growing or medium-height peas in the cornfield in the low places or near a stream where there will be plenty of moisture.

Planting the peas near the hills of sweet corn in the garden often works well. The support is sufficient to sustain quite a bunch of vines. Sometimes I thus secure a heavy crop. The corn shades the vines enough to produce fine large tender peas and if planted to bear in September, and even in early October, they will be found to be even more delicious than those grown in early or mid summer, and few persons will fail to appreciate peas at this time.

Housewives hereabouts are canning the late-grown peas, and they declare they keep better than those grown earlier in the season. Late peas sell readily in the markets.

Fire Blight

By George F. Potter

THE accompanying photograph shows a twig of an apple tree attacked by fire blight. The leaves at the end are shriveled and dried, and in nature are dark brown in color, giving the twig



When the fire blight, generally known as leaf blight, is not severe, only some of the terminal leaves turn brown and die. In bad epidemics half of the leaves of pear and apple trees look as though they had been scorched with fire.

the appearance of having been singed with fire. From this the name fire blight results.

The disease is of bacterial nature, and cannot be controlled except by cutting out the infected part. To be certain of getting rid of all the infection, it is necessary to cut off the twig at a distance of about 12 inches below the lowest visible marks of the disease. A solution of corrosive sublimate at the rate of one 7½-grain tablet to a pint of water should be applied to the stub. This disinfection of the stub is especially important because without it the pruning-out may spread the disease.

Control of Blackberry Borer

THE blackberry cane borer has been seriously troublesome in many parts of the country recently, killing the canes and thus ruining the chances of the crop. No spraying is of any use, but I find cutting and burning does the trick. There are two ways of doing this work. One is to look for, cut off, and burn all the swelled parts of the blackberry canes at the time of the regular winter or early spring pruning. There is no mistaking these swellings, because they are fully double the diameter of the cane itself. It is not necessary to bother with the whole cane—just the swelled part with an inch or two above or below the swelling. The cut pieces may be easily carried in a basket.

Where a very serious attack has occurred, and where other blackberries are growing in the neighborhood, I have found it a good plan to cut off all the young shoots produced before the end of June, so as to destroy the young grubs in them. By that time all the adult beetles will have died, so the canes produced during July will be free from the borers. There is no use saving a "galled" cane, for it can't produce a decent stand of berries. The sooner it is burned the better. It is not necessary to burn the green shoots, because the borers being footless cannot crawl to new canes, and are also unable to live on dead wood.



What the Exhaust Tells

By W. V. Relma

EVERYONE who drives a car should try to drive it economically. If the money saved is of no importance the satisfaction of having a smooth-running motor and the freedom from frequent adjustment bills ought to repay sufficiently for the effort of the driver to run his car in the most economical manner possible.

For example, the appearance of the exhaust smoke will tell a very plain story of the motor's performance.

A dark heavy smoke from the exhaust indicates a rich mixture. In other words, the proportion of gasoline is too great for the amount of air used in the carburetor. This is accompanied by a disagreeable odor. A heavy blue smoke from the exhaust will indicate too much oil is being fed to the cylinders, or faulty rings which allow the oil to enter the firing chamber.

Lean Mixture Saves Gasoline

A rich mixture will have a tendency to overheat the motor, waste gasoline, and cause the motor to carbonize quickly. The driver should learn to run upon as lean a mixture as possible up to the point of making the motor back-fire. In taking long drives it is possible to cut down the gasoline consumption very materially by adjusting the carburetor for a very lean mixture. In fact, a much leaner mixture can be used on long drives than for city work, and where frequent stopping and starting is necessary.

A good driver will give his attention to these things not only for economy sake but for the freedom from trouble which will result from observing these precautions.

Low Inflation a Luxury



Proper inflation

omy is to be considered, proper inflation will save money.

For instance, with a \$20 tire continual underinflation may lessen its life a thousand miles. If the tire is guaranteed for 3,500 miles, this would mean a loss of about \$5.70 for each tire. On four tires the loss would amount to \$22.80 plus the costs of inner tubes which would be destroyed by premature blowouts.

Overloading the car produces about the same results, but this is not so common a cause of tire deterioration. An underinflated tire is continually undergoing a process of kneading which serves to separate the various layers of rubber and fabric. Underinflation shows its work in a tendency of the tire to lose its tread. This will pull loose and be torn upon a sharp stone, and then flap in the wind as the tire revolves, gradually causing the rest of the tread to tear loose in chunks and strips. Dirt, stone, sand, and water get in between the tread and the fabric and gradually loosen it till it is torn off by road contact.

Putting a large delivery body on a light car frequently makes it under-tired; that is, the tires are too small for the average load. This produces the same effect as underinflation, because the walls of the tires are bent and the tread uselessly kneaded in the same manner. The remedy for this is to apply what is known as oversize tires to the present wheels on the car. For all standard wheels there are larger-sized tires made which will fit the rims. These larger sizes will hold more air, are built more substantially, and have a larger inner



Too flat

tube, so it is easy to see that they will carry a considerably larger load.

A taxi driver of my acquaintance, who is a very careful driver, and who keeps a very accurate record of expense, has found that oversized tires have lessened his tire expense just one-half. A taxicab is very hard on tires, and is a good car by which to judge tire values.

The chief point in tire service is so to load your car that the tires do not bulge to a very great degree. It is the bulge and consequent kneading of the tires that cause the damage.

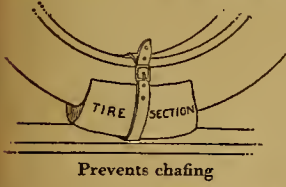
Delivery cars frequently have an appalling tire expense, due to the fact that the tires are run without the slightest attention to small cuts and bruises. If these small cuts and bruises are corrected when they start they will usually cause no further trouble, and the life of the tire will be prolonged. As long as a coating of rubber is kept upon the tire fabric, little damage can be done. But as soon as small holes allow water and dirt to enter and grind the tread from the fabric, trouble is sure to result.

Usually small cuts can be filled with some of the various cut-filler preparations upon the market, and the larger cuts should be vulcanized immediately.

Better Run on the Rim

If the front wheels are badly out of alignment, the entire rubber tread can be worn off the front tires in a few days' driving. Where the alignment is not so bad, it will require some time to wear the tread off, but it is accomplished just as surely. Abrupt contact with a curb or some large object in the road will frequently alter the front-wheel projectment so that the tires will rapidly wear. A frequent checking up of the front wheels is good insurance against rapid wear. In fact, any peculiarity of the steering apparatus should be immediately investigated, as it may be dangerous.

Running a flat tire is costly even for a short distance. It usually means a new casing and a new inner tube. A stone bruise, which is a break in the tire fabric, is most often caused by sharp contact with a fair-sized stone. This should be remedied at once by having the tire vulcanized, as it will result in a continual procession of pinched tubes, and finally end in a blowout. The proper care of spare tires is important so that they will be in good condition when it is desired to use them. The third illustration shows a method of preventing chafing when carried on the running board.



Prevents chafing

Weight of Auto

A SUBSCRIBER asks whether a light-weight or heavy car is better for year-around service and for all kinds of road conditions; also if there is any way to find the weight of a car, knowing the horsepower, wheel base, number of cylinders, bore, and stroke; also whether you can determine the horsepower if you know the number of cylinders and the bore and stroke.

It is impossible to determine the weight of the car from such information as is suggested. Either weigh the car on scales or write to the manufacturer, giving the model of car and mentioning all equipment.

A light car is probably better for year-around service in the country. It is generally cheaper to run, but a heavy car is easier riding.

Horsepower may be estimated from the size and number of cylinders, but the more accurate method, especially in the case of used cars, is to make a brake test of the actual performance.

Car Owners and Others

THE Automobile department gives the opinions of motor-car owners on various topics, but they are not limited to the men and women who drive. The experiences of those who dodge are equally welcome. If you are considering buying a motor car and are still undecided, or if you are in doubt about the cost of upkeep, perhaps we can help you find the answer.

Or if you want to know about touring maps, accessories, or anything else in motordom, let's have your questions. They will be answered either by return mail or, if not urgent, in this department. No trouble; we're glad to do it. Address the Automobile Editor, FARM AND FIRESIDE, Springfield, Ohio.

Other Unrivalled Records

All made under A. A. A. supervision, by a certified stock car or stock chassis, and exceeding all former stock cars in these tests.

100 miles in 80 min., 21.4 sec., averaging 74.67 miles per hour for a 7-passenger touring car with driver and passenger.

75.69 miles in one hour with driver and passenger in a 7-passenger touring car.

Standing start to 50 miles an hour in 16.2 sec.

One mile at the rate of 102.53 miles per hour.

1819 miles in 24 hours at average speed of 75.8 miles per hour.

Over 3800 miles at speed exceeding 75 miles per hour without evident wear on any engine part.

Hudson Super-Six
Sets New 24-Hour Endurance Mark

Fastest Time for Such Distance ever made by a Traveling Machine

No man today—if he knows the facts—doubts the Super-Six supremacy.

At first the truth seemed like a romance. Think of one new invention, applied to a light six, adding 80 per cent. to its power.

Then official records began to pile up, certified by the A. A. A. The whole motoring world then had to concede this the greatest motor built.

But many men asked, "What about the endurance? Can a motor so flexible, so speedy, so powerful, stand up in years of road use?"

So we asked Ralph Mulford to take a stock Super-Six chassis and, under official supervision, show the world its endurance.

All Records Broken

He took a Super-Six stock chassis—certified by A. A. A. officials.

It had already been driven over 2000 miles at speed exceeding 80 miles per hour.

It had made a mile at Daytona at the rate of 102.53 miles per hour.

And he drove that car 1819 miles, on Sheepshead Bay track, equal to the distance from New York to Denver—in 24 hours of continuous driving—at an average speed of 75.8 miles per hour. At the end of that test—after nearly 4,000 miles of record-breaking strain—the car, when officially examined, showed no appreciable wear.

How Much Endurance Has It?

It will be many years from now before we can tell you how long a Hudson Super-Six will last. But the records we cite cover the greatest strains a motor car ever met. Many a great engine has gone to pieces under far lesser strain. Years of ordinary driving would never tax a motor like those thousands of miles of speed tests.

Yet the wear on the Hudson Super-Six was almost nothing. Certain it is that no man has ever built a traveling machine to compare with this car in endurance.

Greatest Endurance Proved

That was the last question—this one of endurance. In all other ways it has long been evident that the Super-Six stands supreme. Never has a motor of this size shown anywhere near such power. Never was an engine made to match this in smoothness. Never has a stock car recorded equal performance—in hill-climbing, quick acceleration or speed.

Handsome cars have never been shown. Finer engineering is simply unthinkable, with Howard E. Coffin at the head of this department.

You are getting the car of the day when you get the Super-Six. Every man who knows the facts knows that. And, in view of our patents, rivalry is impossible.

No Need to Wait

It is natural to say, "Let us wait and see," when we meet such radical advancements. We think that nothing can excel in so many ways without falling behind in one.

But not one fact about the Super-Six is left unproved today. Not in one respect has its performance been matched. Not in any way has a rival motor been made to compare with this.

There is no need to wait to get Time's verdict on the Super-Six. The records prove the Super-Six supreme. A half-hour's ride without those records would convince any man of the fact.

Thousands of these cars are now running. You will find them in every locality. And every owner will tell you that he never meets a car to compare with his, in looks or performance.

These are things to consider when you buy a car.

Phaeton, 7-passenger, \$1475	Roadster, 2-passenger, \$1475	Cabriolet, 3-passenger, \$1775
Touring Sedan \$2000	Limousine \$2750	

(Prices f. o. b. Detroit)

HUDSON MOTOR CAR COMPANY, DETROIT, MICH.

Sloan's Liniment
Care for Your Cattle!

Lameness, Swellings, Sore Udders, quickly yield to the penetrating and healing qualities of this liniment. You cannot afford to be without it for it is faithful in times of sudden distress

\$1.00 size contains 6 times the 25c.

Bumper Grain Crops
Good Markets — High Prices

Prizes Awarded to Western Canada for Wheat, Oats, Barley, Alfalfa and Grasses

The winnings of Western Canada at the Soil Products Exposition at Denver were easily made. The list comprised Wheat, Oats, Barley and Grasses, the most important being the prizes for Wheat and Oats and sweepstake on Alfalfa. No less important than the splendid quality of Western Canada's wheat and other grains is the excellence of the cattle fed and fattened on the grasses of that country. A recent shipment of cattle to Chicago topped the market in that city for quality and price.

Western Canada produced in 1915 one-third as much wheat as all of the United States, or over 300,000,000 bushels. Canada in proportion to population has a greater exportable surplus of wheat this year than any country in the world, and at present prices you can figure out the revenue for the producer. In Western Canada you will find good markets, splendid schools, exceptional social conditions, perfect climate, and other great attractions. There is no war tax on land and no conscription.

Send for illustrated pamphlet and ask for reduced railway rates, information as to best locations, etc. Address

M. V. McINNES
178 Jefferson Ave., Detroit, Mich.

W. S. NETHERY
Interurban Bldg., Columbus, O.
Canadian Government Agent.

60 ACRE FARM IN WESTERN CANADA FREE

No passports are necessary to enter Canada

We guarantee that every subscriber will receive fair treatment from advertisers. It therefore pays you to mention Farm and Fireside in answering advertisements



You need a new DE LAVAL SEPARATOR NOW

1st If you are still using some gravity or setting process of creaming—

BECAUSE YOUR WASTE IS greatest and quality of product poorest in mid-summer when the milk supply is heaviest. BECAUSE TIME IS OF GREAT value on the farm at this season and the time and labor saving of the good separator counts for most.

BECAUSE THE SKIM-MILK IS poorest without a separator in hot weather and often more harmful than helpful to calves. BECAUSE THE WORK OF AN improved De Laval Cream Separator is as perfect and its product as superior with one kind of weather as with another.

2nd If you have a very old De Laval or an inferior separator of any kind—

BECAUSE THE LOSSES OF the poor separator from incomplete skimming and the tainted product of the hard-to-clean and insanitary separator are greatest at this season.

BECAUSE OF THE GREAT economy of time at this season in having a separator of ample capacity to do the work so much more quickly.

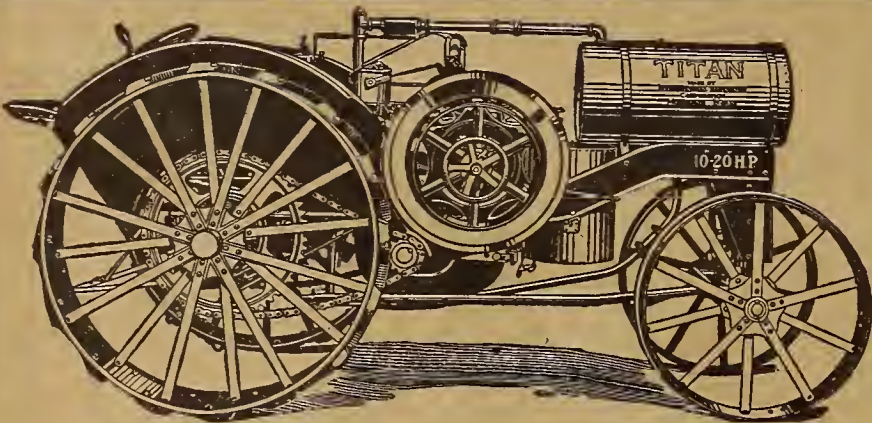
BECAUSE AN IMPROVED DE Laval is so much simpler and

more easily handled and cared for than any other, and you cannot afford to waste time these busy days "fussing" with a machine that ought to have been thrown on the junk-pile long ago. BECAUSE THE DE LAVAL separator of to-day is just as superior to other separators as the best of other separators to gravity setting, and every feature of De Laval superiority counts for most during the hot summer months.

These are all facts every De Laval local agent is glad of the opportunity to prove to any prospective buyer. If you don't know the nearest De Laval agency simply write the nearest main office, as below.

THE DE LAVAL SEPARATOR CO.

165 Broadway, New York 29 E. Madison St., Chicago
50,000 BRANCHES AND LOCAL AGENCIES THE WORLD OVER



\$900 Cash
f. o. b.
Chicago

Titan 10-20

\$900 Cash
f. o. b.
Chicago

The New International Harvester Kerosene Tractor

Latest in Design—Backed by Over Ten
Years' Experience in Tractor Building

AFTER years of searching tests, the new Titan 10-20 takes its place in the regular line-up of International Harvester Kerosene Tractors.

Here are a few of the features you want to know about:

It develops full 20 mechanical H. P. in the belt—10 at the drawbar.

It works on kerosene—common coal oil—a fuel saving of about \$200 on an average year's work, over gasoline at present prices.

It has a smooth running twin-cylinder engine, 6½" bore and 8" stroke.

Entire crank case enclosed—no dust or grit can get to engine. Shields over drive wheels help to keep out dirt.

No batteries needed—start and run on magneto.

Automatic oiling—keep the oil tank full and the engine does the rest.

Two forward speeds, 1.85 and 2.50 miles per hour—and one reverse.

Powerful, flexible chain drive to each rear wheel.

Turns in 28-foot circle. Handles like an automobile.

Powerful brakes on both rear wheels.

Length 147", width 60", height 66½". Approximate shipping weight, 5,225 lbs.

Titan 10-20 is now ready for delivery in limited quantities. Orders will be filled in turn as received. Now is the time to get posted. Write for complete information about the full line of tractors, from 8-16 to 30-60-H. P. sizes.



International Harvester Company of America

(Incorporated)

CHICAGO

USA



Dairying

News of Dairydom

By C. O. Reeder

MILK retails in Milwaukee, Wisconsin, for six cents a quart. The best spring water sells at 15 cents for a two-quart bottle, making it a fourth more expensive than milk.

THE State Prison of Minnesota has built a creamery, but according to last reports was unable to find a butter-maker among the prisoners, though nearly every other profession was represented.

ALABAMA has over 2,200 dipping vats, of which about one fourth were built last March. Nine counties are waging a systematic campaign against the cattle tick, and have already dipped over 35,000 cattle this year.

DAIRYING in northern Wisconsin continues to advance with leaps and bounds. Marinette County has 400 silos, of which about 100 were built last year, and there will be over a hundred more this year.

AN ALTERNATE electric current is claimed to hasten the ripening of cheese by stimulating chemical and bacterial changes. If perfected, this method will revolutionize the cheese industry.

Drying Heavy Milkers

THE customary method of drying off the average dairy cow is simply to omit every other milking until the milk flow diminishes, and then skip still more milkings till it stops entirely. Sometimes the process will require two or three weeks, but usually less. A cow producing less than 10 pounds of milk daily may be dried off any time, without injurious results, simply by stopping milking.

High-producing cows are more difficult to handle in this respect, and some dairymen claim it is impossible to get their best cows to go dry. The first step to dry off an animal producing 20 pounds of milk a day or more is to change the feed. If she is on pasture, remove her to a dry feedlot. If she has been receiving alfalfa or clover hay, give her timothy or similar non-succulent feed. In winter time take away the grain.

Then milk at irregular intervals and the flow will soon decrease. At the end of a week it will fall off about five pounds, and in a few more days milking may be stopped entirely. The udder may fill up, but in a few days the milk will be reabsorbed, and finally the udder will become normal. A rest of about six weeks is beneficial to the cow, and experience has shown that cows will have a greater annual yield if they are dried off instead of being milked up to the time of calving.

Dairy-Calf Problem

By Frank G. Davis

WHAT is the best thing to do with dairy calves? Can we make more by selling them when young or by raising cows or beef for the market? Experience along this line differs, but we can make more by keeping heifer calves

and disposing of the bull calves. It costs very little to keep a calf, especially if one has a good place for it to run in the summer, and the feed it consumes in the winter is scarcely missed.

For a long time we had been selling all our calves when they ranged in age from six to nine weeks, at from \$7 to \$12.50. Finally, when a very pretty little female was born we decided to keep her for a cow. The cost of raising her amounted to but little. She made a fine cow, so we decided to keep her first calf.

This calf, however, did not make a good milcher, but stayed rolling fat all the time. We sold her for \$55 for beef, this being a good price in our section at that time, for average cows were selling at \$40 all around us.

This gave us an idea. Why not raise all the female calves? If they made good cows we could keep them. If they did not, then we could dispose of them for beef. We have followed this plan out and got some good milchers this way and made good money on those we sold.



Eighteen dollars was offered for this calf

Were I asked advice along this line I should have to say, "Keep your calf by all means if you have a good place to let it run."

Prospective buyers are mostly farmers who expect to take the calves to their own farms to develop into milch cows, so what is the use in parting with them at such a price as is offered?

Garlic in Milk

WHAT is the best way to remove the garlic taste in milk? This question is asked by a New Jersey reader.

Though large milk establishments have mechanical processes for taking odors out of milk and cream by means of an air blast, there is no practical method for use on dairy farms. An aëra-tor would perhaps be of some slight advantage, but prevention is the best cure. Keeping the cows off garlicky pastures several hours before milking is the most effective means of overcoming the trouble.

One of the best ways to kill wild garlic in pastures is to turn in sheep. They like the tops, and in a few years the garlic will disappear.

Feeding Shed with Silo

THE picture, which is sent by an Illinois reader, shows a rather uncommon construction of feeding shed that is especially suitable for the summer months when pastures are scant and silage is the best succulent feed to be had.

The building is not yet completed, as may be observed from the piles of gravel and sand which are to be used in laying a concrete floor. The space overhead contains a passage way for convenience in throwing down the silage and also storage room for hay and bins for grain.



Though new in style, this feeding shed is designed along practical lines. When not occupied by cattle it may be used for implements



Crops and Soils

Rounds Out Pocketbook

DR. A. L. ABBOTT, who is also a farmer, is finding that the lime rock so plentiful in his section (Owen County, Kentucky), when pulverized and applied at the rate of four tons per acre, is a material help to the successful growing of legumes, and indirectly is changing the whole outlook of his farming operations.

Singularly enough, Doctor Abbott has found that his land of limestone formation is sour, and is much benefited by applications of pulverized lime. Here are the doctor's words, giving his experience with the lime:

"Since getting my lime-pulverizing outfit I have crushed about 100 tons of limestone, which can be had here for picking it up. The rock analyzes 97.6 per cent lime.

"Thus far I have spread the lime from wagons with shovels, and when applied at the rate of four to five tons an acre, this plan answers the purpose very well.

"I immediately disk the lime into the plowed soil after spreading.

"At present I have altogether about 18 to 20 acres of alfalfa, but I never sow a plot of land to alfalfa without first seeding it to sweet clover. I harvest a crop of sweet-clover hay every year.

"I really prefer the sweet-clover hay to alfalfa hay for feeding cows, as I think there is more feeding value in it.

"My wife says she doesn't care about

mixed with Johnson-grass seed, an objection to Southern-grown seed.

To Kill Canada Thistles

By S. E. Rhine

ASIDE from the growing of some root crops in succession and persistent and intensive cultivation, the mulch method is the best for destroying Canada thistle. In fact, when expense of time and labor are considered (and they should be) the mulching is the most economical method known. The remedy is simply this: Thickly cover the infected spots with old hay, straw, manure, weeds, or leaves—in fact, fodder or anything that will exclude the sunlight and air—and the thistles simply cannot grow; they smother. The job is done.

Overbalanced by Harrow

By Frank L. Brelsford

THE accounts of narrow escapes in FARM AND FIRESIDE call to my mind an incident in April, 1898. At the age of thirteen I was working for my uncle, who at that time lived on a farm about two and one-half miles southwest of Conover, Ohio. My first job was to help plow about 10 acres of corn stubble.

We finished the plowing the third day at noon. It was a very disagreeable day, and my uncle was attacked with a severe chill at noon and was confined to the house that afternoon. I went to the field one-half mile from the house with a heavy spike-tooth harrow loaded on a sled and drawn by three large horses.

On arriving at the field my intention was to lift the harrow and hold it on edge until I had spoken to the horses and had them step up and draw the sled out of the way because I knew if I pushed the harrow back on the ground I would be unable to turn it to its right position again on account of its weight.

So I lifted the harrow up on edge and balanced it there until I walked around on the opposite side out of the way of the sled. But the big harrow overbalanced me and we both came down

Good Health Talks

By DR. DAVID E. SPAHR



MRS. W. H. S., Ohio, complains of shortness of breath upon the least exertion, or upon walking uphill. At other times she has palpitation of the heart and various unpleasant sensations. She asks if it is heart trouble or if the lungs that

are affected. This is evidently the beginning of serious heart trouble. Now is the time to forestall it. Really she ought to go to bed for a couple of months and give her heart a good long rest until compensation can take place. At least, she must stop all straining or lifting, or walking uphill. She should be quiet, eat lightly, not fret or worry, keep her bowels active, and she will be rewarded accordingly.

Facial Blemishes

For the last four years I have been troubled with blemishes on my face only. They seem to come in the form of a boil. They are composed of a thick, black, bloody matter and remain for some time. M. F. B., New York.

YOU might try the lotion made as follows: Salicylic acid, 2 drams; grain alcohol, 3 ounces. Mix and apply rather lightly three times daily.

For Bowel Trouble

I have been troubled with stomach and bowel trouble for the last eight years. I have gas, soreness in stomach and bowels, nervousness, pain in bowels, and headache. Am not in bed, but ought to be. I am very much discouraged. J. M. S., Ohio.

SERIOUSLY fear you have chronic appendicitis. Consult a good surgeon and have him make a careful physical examination.

Tapeworm

I have a son eleven years old who has suffered with a tapeworm about a year. He has taken medicine from the doctor, and I have also given him pumpkin seeds, but to no avail. K. B., Michigan.

ELEVEN years is quite young to be afflicted with a tapeworm. The usual remedies are so severe and the dose so heroic that they can only be administered by a physician. Pumpkin seeds are about as effectual as any, and are the only thing that can be administered in safety. Take four ounces of pumpkin seeds and bruise them thoroughly and macerate for half a day. Then have him drink it all after fasting for a day. In two hours give him an ounce of castor oil. Repeat in two days if necessary.

Nasal Catarrh

I was cured of catarrh forty years ago by a spray of some kind of zinc preparation. Now my husband has contracted the disease and I want to know just how much and what kind of a zinc preparation it was. I would also like to know how many kinds of itch there are. Mrs. M. E. F., California.

TRY the following: Sulpho-carbolate of zinc, I dram; biborate of sodium, ½ dram. Mix, dissolve in a pint of hot water, and use as a spray in the nose.

There is only one kind of itch—scabies. All these other diseases that cause itching and puritus, like the "Prairie Itch," are only forms of eczema, and are not caused by a parasite at all.

Pains in Feet

I have pains in the arches of my feet. Work in a garage on a cement floor. Am wearing arch supporters. T. J. V., Washington.

GIVE your feet absolute rest for a week or more by lying quietly in bed. Then wear proper-fitting arch supporters and you will be relieved.

Superfluous Hair

Do you know a harmless remedy that will destroy permanently superfluous hairs? E. L., Indiana.

ANY remedy that would penetrate deep enough to destroy the hair bulbs is too powerful to use. Electrolysis is the only resort. Go to some one who is an expert with the electric needle and have him do the work.

FLASH OF LIGHT

The Coffee Facts Came to Her.

Coffee is so often unsuspected in the work it does in the human body that illustrations of this kind are interesting.

An Eastern woman writes: "I did not begin drinking coffee until I was an adult, but finally I began to have headaches and a dull, heavy, stupid feeling. These symptoms grew worse yet I had no suspicion that coffee was the cause.

"After dragging around half sick for some time I was sent off on a visit to see if the change would do me good. I soon began to feel better.

"Before leaving I had a talk with my friend. I had taken no medicine of any kind and the food was about the same as at home. I complimented her coffee and asked what kind she used, and when she told me 'Postum' I was much surprised.

"My friend said she had been using Postum for two years because when she drank coffee it kept her sick. Then it dawned on me like a flash of light that coffee was the cause of my trouble and that leaving it off and using Postum had started me on the 'Road to Wellville.'

"When I went home mother was astonished at the change in me and from that time to this we have left coffee off the table and used Postum altogether. Mother is better, too, and my headaches and sick feelings have never returned. There is no doubt but that coffee was a poison to us and Postum is the cause of our health and comfort." Name given by Postum Co., Battle Creek, Mich.

Postum comes in two forms:

Postum Cereal—the original form—must be well boiled. 15c and 25c pkgs.

Instant Postum—a soluble powder—dissolves quickly in a cup of hot water, and, with cream and sugar, makes a delicious beverage instantly. 30c and 50c tins.

Both forms are equally delicious and cost about the same per cup.

"There's a Reason" for Postum.

—sold by Grocers.

FOR SALE Beautiful country estate in Virginia located between Washington and Richmond, on railroad, 800 acres, mostly level, good dwelling and outbuildings. Address, Lock Box 15, Bowling Green, Va.



PARKER'S HAIR BALM

A toilet preparation of merit. Helps to eradicate dandruff. For Restoring Color and Beauty to Gray or Faded Hair. 50c. and \$1.00 at Druggists.



MAKE YOUR BIKE A MOTORCYCLE

at a small cost by using our Attachable outfit. FITS ANY BICYCLE. Easily attached. No special tools required. Write today for bar—FREE BOOK describing the SHAW Bicycle Motor Attachment. Motorcycles, all makes, new and second-hand, \$35 and up.

SHAW MANUFACTURING CO. Dept. 88, Galesburg, Kansas.

LEPAGE'S GLUE 10¢
HAS HUNDREDS OF USES

Our Housewife Club

By special arrangement with the publishers of the Housewife, you can get this splendid paper for one year in connection with FARM AND FIRESIDE at a special reduced price.

The Housewife is a bright, entertaining monthly magazine containing many wholesome serials and short stories and articles of unquestioned merit. It is a magazine that a woman looks forward to receiving each month. It is well illustrated with the work of the best-known artists. Housewife is edited by Lilian Dynevor Rice.

Farm and Fireside } both for 60c
The Housewife }

For One Whole Year

FARM AND FIRESIDE, Springfield, Ohio

FREE SPLIT HICKORY BUCKY

MY NEW SPLIT HICKORY BUCKY Just drop me a postal and I will send you a copy of my big, new Buggy Book, FREE and Postpaid. It shows more than a hundred stunning new styles which my big factory is turning out this season at prices as low as only \$39.25 and up. Think of getting a genuine Split Hickory Buggy guaranteed 2 years at such prices. Send today and see how to save \$20 to \$40 on your new rig. Address: W. C. PHELPS, Pres., THE OHIO CARRIAGE MFG. CO., Station 42, Columbus, Ohio.

any other kinds of grass except sweet clover and alfalfa, because these crops make lean cows fat and fat cows fatter, and so bulge out the lean side of our pocketbooks."

Sudan Grass in the North

REPORTS keep coming in from the more northern States showing that Sudan grass is standing the Northern climate better than was at first anticipated. In Wisconsin, when sown rather late, Sudan grass last year made a yield of 3½ tons of hay to the acre. This crop was grown on soil that was fairly fertile and in good state of cultivation. From 20 to 25 pounds of seed per acre was used, and sown about ten days after corn-planting date. It was found that Sudan grass was not a good nurse crop to use when sowing grass or clover seed. This crop grows so vigorously and requires so much moisture that grass or clover seed seeded with it stands but a poor chance of getting a catch.

Quite similar results are reported from South Dakota. Even in unfavorable seasons, when there is lack of moisture, from one to two tons per acre of hay has been realized. In favorable seasons the crop has made from three to five tons per acre. It has been found that the best time to cut Sudan grass for hay is when the grass is in bloom for the first crop, and for the second crop, in Northern latitudes, before there is danger of its being frosted. When only one crop of hay was cut and the second crop allowed to go to seed, from three to eight bushels of seed per acre, weighing 50 pounds to the bushel, was secured. The Northern-grown seed is most in demand on account of not being

together, I underneath,—a very uncomfortable position.

I began calling for help, but as I was so close to the ground it was difficult for me to make my voice carry any distance. I had hope from the start of making the school children hear me, the schoolhouse being less than half a mile from me. But school had taken up for the afternoon, so I was doomed to lie there until school was out. But rather than give up I kept on calling.

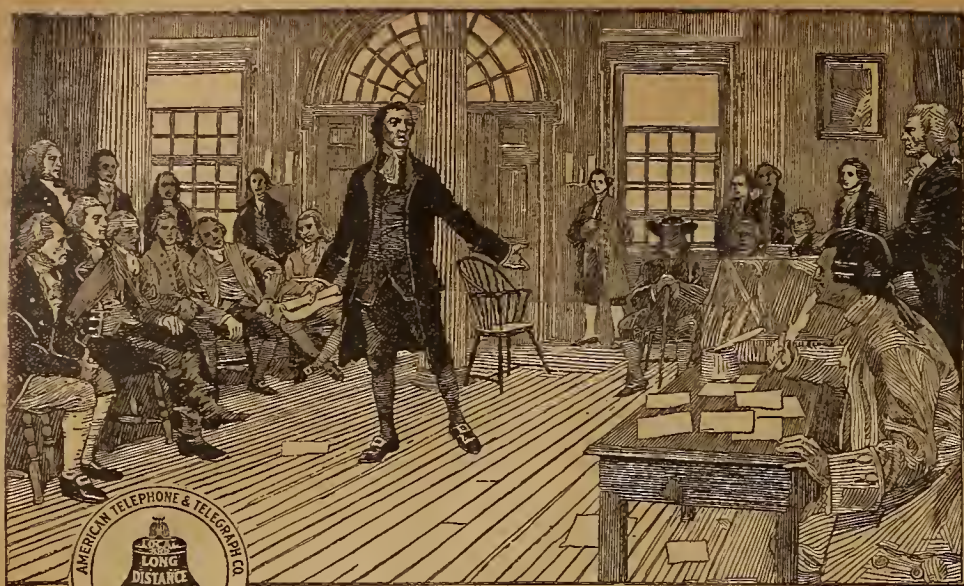
Finally school was out, and in a few minutes two boys and the schoolmaster released me.

Filling Dead Furrows

By S. E. Rhine

IN THE February 26th issue of FARM AND FIRESIDE someone gives a method of filling dead furrows. The following method I have found still more effective. If sod is plowed, roll immediately after plowing, and as soon as dry enough harrow with a "spring-tooth" in the same direction the plowing was done. Set the harrow rather shallow, yet deep enough to loosen the dirt and fill up crevices between the furrows.

Then set it so it will cut about three inches deep and harrow the field at right angles to the dead furrows. If this does not fill them sufficiently attach a 4x4 as long as the width of the harrow for the cross-harrowing. Wire the 4x4 to the back of the harrow so it will drag loosely. The dead furrows as well as all other uneven places will be leveled off nicely. If the plowing has been done in stubble ground, one harrowing at right angles to the furrows will in many cases be sufficient to level them all up.



Patrick Henry Addressing the First Continental Congress, Philadelphia, 1774

One Nation; One People

WHEN Patrick Henry declared that oppression had effaced the boundaries of the several colonies, he voiced the spirit of the First Continental Congress.

In the crisis, the colonies were willing to unite for their common safety, but at that time the people could not immediately act as a whole because it took so long for news to travel from colony to colony.

The early handicaps of distance and delay were greatly reduced and direct communication was established between communities with the coming of the railroads and the telegraph. They connected places. The telephone connects persons irrespective of place. The telephone system has provided

the means of individual communication which brings into one national family, so to speak, the whole people.

Country wide in its scope, the Bell system carries the spoken word from person to person anywhere, annihilating both time and distance.

The people have become so absolutely unified by means of the facilities for transportation and communication that in any crisis they can decide as a united people and act simultaneously, wherever the location of the seat of government.

In the early days, the capital was moved from place to place because of sectional rivalry, but today Independence Hall is a symbol of union, revered alike in Philadelphia and the most distant American city.

AMERICAN TELEPHONE AND TELEGRAPH COMPANY
AND ASSOCIATED COMPANIES

One Policy

One System

Universal Service

Ditching and Terracing
Made Easy—Bigger Crops—better farms with *Martin* Farm Ditcher & Road Grader. Cuts ditch to 4 ft. Grades roads. All Steel—Practical—Adjustable—Reversible. Cleans ditches, cuts and works out dirt at same time. Does work of big machines. Soon pays for itself. Write for free booklet and introductory proposition. Owensboro Ditcher & Grader Co., Inc., Box 845, Owensboro, Ky.

This Car GIVEN and the Agency for your Territory
5 Passenger—26 H. P. Electric Lights and Starter—Demountable Rims—Non Skid Tires in Rear—Fully Equipped. A wonder car and you can get one without cost. Write now for full information. Learn how you can get this car without cost and make big money in the automobile business. Don't delay—the offer is strictly limited. Write at once. A postal will do. Address me personally. **Ralph Birchard, Pres.**
Birch Motor College, Inc. Dept. 770, Tower Bldg., Chicago

Eli HAY BALERS
makes clean, compact bales of anything balable. Built by pioneers. Highest award at four expositions.
40 Styles and Sizes for every need. Biggest results and profits for users. Write for latest Catalog.
COLLINS PLOW CO.
1116 Hampshire St., Quincy, Ill.

AGENTS—FARMERS—SALESMEN!
DO YOU WANT THIS FORD AUTOMOBILE



AND A BIG PAYING BUSINESS BESIDES
We want a man in each community to work with us on our big new plan—to travel by automobile and handle the big Wilbur Line of Stock Tonics, Farm Remedies, Medicines, Extracts, Spices, etc. We equip each man with an automobile and set him up in a business of his own that will pay him **\$2,000.00 TO \$3,000.00 A YEAR.**
This offer is open to you, no matter who you are or where you live. No experience necessary—we teach you everything. No capital required—everything furnished. Liberal credit—big commission—exclusive territory—brand new plan. Write us at once—today—don't put it off. Full details of our plan, how to get started, etc., will be sent at once.
WILBUR STOCK FOOD CO., 111 Huron St., Milwaukee, Wis.

ROSS Silo Fillers for Gasoline Engine Power
Our 66th Year
Double the Capacity with Less Power and considerably Less Speed.
We make Silo Fillers of extra large capacity to meet the special requirements of all silo users. These machines are specially designed to be operated by popular size Gasoline Engines—6-8-10-12 and 14 H. P.
Tell us what your power is and we will advise you what size Ross Silo Filler you require.
Write for Our Special Proposition Today and state if you intend to buy this year. Early orders will save you money.
The E. W. Ross Co., Box 119, Springfield, Ohio



Live Stock

The Flock in Summer

By Andrew M. Paterson

AFTER shearing when pasture is abundant a very common practice is to turn the sheep out and let them shift for themselves. Where feed and water are plentiful the sheep will generally take care of its own wants, but a little attention on the part of the shepherd will add greatly to the comfort of the animal, and the profits from the flock will be materially increased. Where the pasture is large it should be divided in order that the sheep will have a change in pasture and at the same time get a maximum amount of feed from the land. When sheep graze on large areas they will graze the grasses they like best and leave the unpalatable kinds, which are wasted.

The ewes which are very poor in condition should be separated from the rest of the flock and given a little more feed and attention in order that their condition may be brought up to the average of the flock.

The sowing of rape in the feedlots provides an excellent place to graze the thin ewes, and by utilizing the feedlots in this manner the farm flock can be pastured from land which lies idle during the summer.

Lots of fresh water and shade are essential to the flock. Where natural shade cannot be obtained, a few old

in the fourth stomach, and can be seen by the naked eye. Once in the flock it affects them all, the animals which are weak in vitality showing the first signs of the pest. When infested with the stomach worm the animal lacks appetite, has diarrhea, and the skin is hard and dry. The animal gradually weakens and, if not treated, usually dies. When the stomach worm is known to be in a flock the animals should be put on a good rich ration. Never put them in a worm-free pasture. A good many proprietary medicines have been offered, but they are more valuable as a preventive than a cure. A teaspoonful of gasoline in some milk has proved a good remedy.

The weaning of the lambs should be given some thought. The time of weaning should depend upon the ewes and the lambs. The lambs should be weaned between the ages of four and five months, but where the lambs are strong and growthy and the ewes thin they should be weaned earlier in order to allow the ewe to get into the proper condition for breeding. Where the lambs are backward and the ewes are thrifty, they should be allowed to run with their dams for a longer period. At weaning time the ewes should be taken off feed that is very nutritious and succulent, and given some dry feed that will stop the flow of milk. The udders should be closely watched. The ewes with a large supply of milk should be milked a few times to avoid spoiled udders.

At weaning time the lambs should be put on fresh, nutritious pasture with some grain. They should be separated far enough from their mothers that neither the lambs nor the ewes will be disturbed by the bleating. Lambs should be so handled at weaning that they will keep on growing and gaining in weight.

Success in sheep husbandry depends upon the man. Every farm should have a small flock of sheep; the size of the flock will depend upon conditions. If sheep are properly started and cared for they will prove a valuable source of income.



Where the pasture is large it should be divided, or the sheep will graze the grasses they like best and leave the rest

poles and boards put together will protect the animals from the hot sun.

Care should be used when changing from one kind of pasture to another, especially if the new pasture is more succulent than the old, as the change may cause the animals to bloat and result in a few deaths.

The health of the sheep should be guarded in summer as well as other seasons. Avoid cold, damp weather after shearing. Sheep should not be exposed to cold, driving rains after the wool has been removed, as this is liable to result in pneumonia and cause a loss to the flock.

Sheep should be dipped when the weather has become warm, or directly after shearing. Dipping kills the external parasites, puts the skin in healthy condition, and helps make a luxuriant growth of wool.

One of the greatest pests the sheepman has to contend with is the stomach worm. It is probably the cause of more losses in sheep than any other of the internal parasites. The best remedy is prevention. Avoid, if possible, getting sheep from a flock infested with the stomach worm, occasionally change pasture and graze the lambs on land which is put under the plow each year. The stomach worm is a twisted worm found

Peddling Hog Cholera

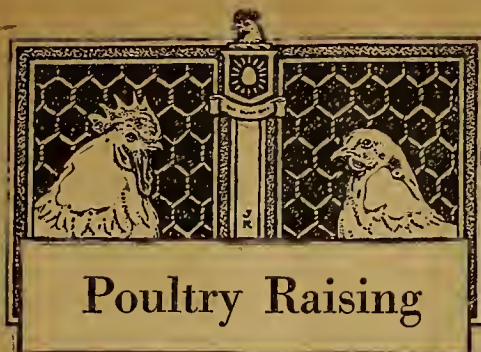
By B. F. Roderick

WHY does hog cholera become more prevalent soon after the harvesting and threshing season? Is it not quite possible that the crews of harvesters and threshers distribute the cholera germs from place to place?

The threshing job is quite often done in hog lots or yards of farm buildings to which the hogs have access. The loss of a few score hogs brought about in this way would pay for an individual threshing outfit, which with the help of a few near-by neighbors would take care of the threshing job without danger of peddling infectious diseases.

To Cure Clover Bloat

CLOVER bloat in cattle has been cured by Healy and Nutter of Kentucky in twenty minutes by a drench of one liter of water containing 300 cubic centimeters of formalin. After the formalin was given, a block was placed between the animal's teeth. It did cows no harm except to make them refuse dry feed for a day or so, and shrink a little in milk yield. The dose is one-half ounce of formalin in a quart of water.



Poultry Raising

A Red-Handed Blood Sucker

By John L. Woodbury

ALL through the hot weather watch out for the red mite. The beginner in poultry is apt to be innocent of the danger from this blood-sucking pest. Sallying forth at night from hidden recesses the mites gorge themselves upon the defenseless chicks. At daylight they return to their hiding places, leaving no trace to betray their visit.

The hidden parts of a coop may be literally alive with mites, and what is considered a most thorough inspection may fail to locate them.

The beginner notices that his chicks come out of the brooder or coops in the morning listless and weak, and even though the weather may be warm they huddle together as if cold, and tip over and die without apparent cause. He makes all sorts of changes in feed, ventilation, etc., which of course are all ineffectual as long as the chicks are exposed nightly to the attacks of the mites.

The extent to which mites can keep hidden was revealed to me quite by accident. A flock of my chicks had been acting as above described. It was not lice or mites, I argued, for I had sprayed the coop frequently, and it appeared to be free from these pests. At length a rat gnawed into the coop, and I changed the brood to other quarters, where they at once began to mend.

A few days later I had occasion to go to coop number one, and what was my surprise to find it swarming with mites—not red now, but almost colorless, as they were not filled with blood. There seemed to be millions of them—some so small as to be almost invisible to the naked eye. They had been driven from their hiding places by failure to secure their nightly repast.

When thus infested with mites coops had better be made into kindling wood, but in the case of good brooders thorough scalding and treatment with kerosene and a repetition of the treatment a few days later will usually destroy all mites.

A teaspoonful of one of the coal-tar dips to a pint of kerosene will add to the effectiveness of the treatment. [One part crude carbolic acid and three parts kerosene is also effective.—EDITOR.]

Above all, do not put chicks in a coop that has remained unoccupied for a period without careful cleansing. I once put a cockerel weighing over two pounds in a small vacated building. The next morning the bird lay dead under the roost, his comb actually white, so completely had his blood been sucked by mites with which the building was found to be swarming.

Sulphur Did the Trick

By Mrs. Lucy Irons

WHEN reading the experience of the poultrywoman who used horse-hairs for gaping chicks it seemed to me her treatment would cause the chicks unnecessary suffering. Here is my simple remedy for gapes, which is a relief to both chickens and the poultrywoman in charge. I use a large teaspoonful of flowers of sulphur mixed with about a pint of cornmeal or any mash food. This quantity is sufficient for 12 chicks, to be fed three mornings in succession, then omit three days. Continue the treatment until you see good results. My remedy was sent to a Wisconsin poultrywoman who reported that it had saved her more than \$500, as she had raised about 400 turkeys for market.

New Light on Late Hatching

By B. F. Kaupp

IT IS the general opinion of poultrymen that late-hatched chicks stand but a poor chance of making profitable poultry.

But is this common failure necessary, or can proper care overcome the handicap of extreme heat?

Here is the experience of summer hatching on the Edgecombe, North Carolina, test farm in 1915: The chicks were brooded in the combination sitting and brooding coops. There was not sufficient shade, so burlap sacks were sewed together and supported over the coops by stobs driven in the ground.

These chicks were given buttermilk to drink, and the mash mixed with it. The mash consisted of equal parts ground oats and corn meal. This constituted the simplest kind of feed, and one that is easily obtainable on any farm.

The birds consisted of pure-bred White Plymouth Rocks. One lot at the end of eight weeks consisted of 28 chicks and averaged .68 pound. There were originally 30, making a loss of two by accident. These were hatched July 11th, so that the brooding extended through August into the first week of September. Another lot of Buff Plymouth Rocks handled in a like manner showed an average weight at eight weeks of .80 pound. These chicks had an abundance of shade. Shade must be had, and if it is not supplied by trees and shrubbery it must be provided by tents or burlap. Several other tests showed that the birds do not make such favorable gains in hot weather, but make fairly creditable gains, reaching the squab-broiler size at eight weeks of age.

Our experience at this station makes it evident that one reason for lack of success with late-hatched chicks on some farms is neglect. It also became very apparent that it is best to feed milk, as the gains were much greater where milk was given. Sour skim milk or buttermilk was found about equally good.

Lice and mites are a frequent cause of failure in raising hot-weather chicks. It is impossible for a lousy or mite-stricken bird to do well.

My Best Investment 69%

By H. F. McDonald

IN FARM AND FIRESIDE, May 23, 1914, there was an article on "Practical Ways of Preserving Eggs." I tried this out that fall by packing eggs for our own use, and found we had more than enough, so sold \$7.42 worth of eggs at the top price to well-pleased dealers.

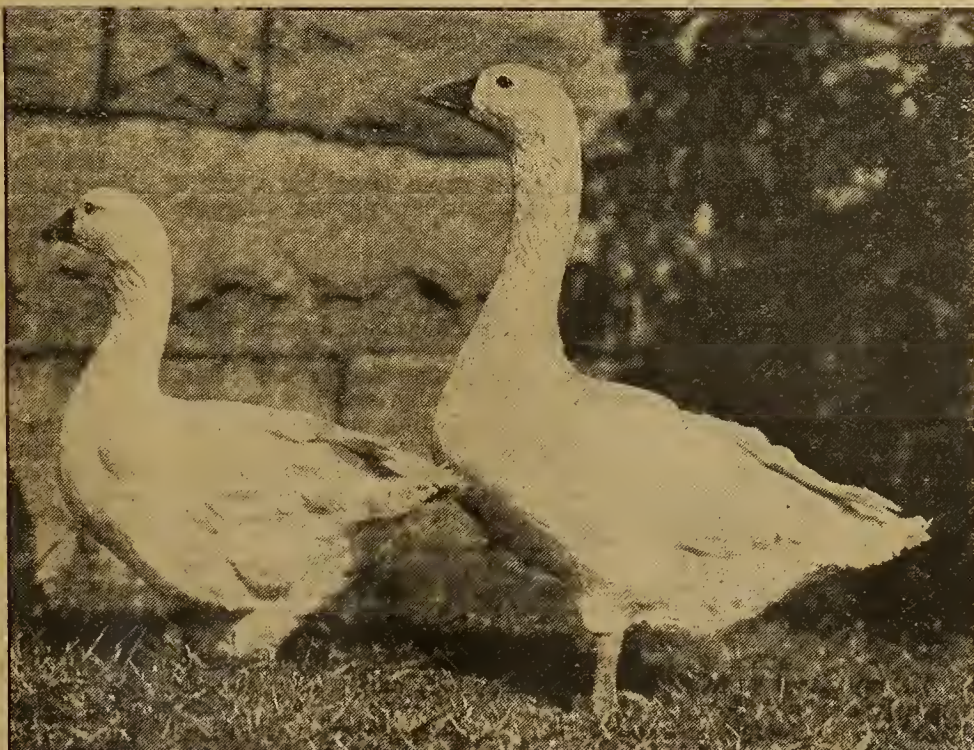
In June, 1915, when eggs went down to 15 cents a dozen, I began to put them in a solution of water glass. In August it was plain my hens would not lay enough eggs to fill the jars I had, so I bought of my neighbors 241 dozen for \$38. In October, eggs went up to 25 cents per dozen, and I began to sell, and by December 31st had sold out 569½ dozen for \$154.84. The highest price received was 30 cents per dozen. The value of the home eggs at the price of those bought made the cost of eggs, \$90.25; water glass, \$1.50. Total, \$91.75. Which left a net profit of \$63.09, practically 69 per cent on less than a six-months investment.

This is without taking any account of the prodigal use of eggs used by a family of four, and that the water glass is still on hand to be used another year. It looks as though I had made enough on this one item to afford to take FARM AND FIRESIDE the rest of my lifetime.

Goose Laid the Golden Egg

By Mrs. J. Smith

MY FIRST experience in goose farming began with a lone lady goose which cost me \$1.50. She laid 35 eggs each of which brought forth a gosling except one. Six got out of their pen in a bad rainstorm and the chilling caused their death the following day. From the 28 that grew to maturity I picked 4½ pounds of feathers before selling them. The feathers were worth 60 cents a pound.



Mr. and Mrs. Goose with their family raised now have only to grow feathers for pillows. They turn grass into feathers while you wait

I sold my young geese shortly before Thanksgiving for \$38.24, and kept the old goose for another year's breeding.

My goslings were fed but little except for the first two weeks. Their feed for that period was bread and milk and fresh grass. They then lived on good fresh pasture almost entirely until two weeks before selling. They were then fed the same grain mixture used for fattening my poultry.

Pushing Ducks to Maturity

By M. L. Poling

TOO many who are young in the business of duck culture are inclined to handle young ducks the same as young chicks in feeding and caring for them. This is a mistake. Ducks and chicks are quite different in their natures. Good results are being obtained by the plan of feeding and handling followed by the Nebraska Experiment Station Poultry Department. This schedule of feeding and handling young and mature ducks is worth studying:

First Week

2 parts bran.
1 part corn meal.
½ part middlings.
5 per cent sharp sand.
Feed five times per day.

Second Week

2 parts bran.
1 part corn meal.
1 part middlings.
5 per cent beef scrap.
5 per cent sharp sand.
Finely cut cabbage or clover rowen.
Feed five times per day.

Third to Eighth Week

2 parts bran.
1 part corn meal.
1 part middlings.
10 per cent meat scrap.
5 per cent sharp sand.
Green feed as above.
Feed four times per day.

The eighth week marks the time to force for rapid maturity. Confine, and feed the following ration: 1 part bran, 1 part corn meal, 1 part middlings, ½ part meat scrap, 5 per cent sharp sand. Feed four times a day. Limit the amount of green feed given.

Turn the breeding ducks out to pasture with abundance of shade, and continue the above third-to-eighth-week ration. Feed three times a day until maturity; then feed twice a day.

Feed the layers 2 parts bran, 1 part corn meal, 1 part ground oats, 10 per cent meat scrap, 5 per cent sharp sand; 15 per cent green feed, such as clover rowen, cabbage, etc. Supply oyster shell and grit.

FEED no meat or moist mashes till chicks are four or five weeks old.

JOSEPH MCCARTY, 63 Hedgewood Avenue, Zanesville, Ohio, followed out FARM AND FIRESIDE's suggestion about making hens' nests from orange boxes, with complete success. He now uses nothing else.

DID you ever think that an incubator incubates disease germs as well as chicks? The favorable temperature, bits of shell, and moisture from the hatching chicks are just adapted to help germs of disease to develop and multiply when they gain access to the incubator. Always wash the hands after handling ailing chicks or poultry of any kind before turning the eggs or handling chicks in the incubator. Also disinfect the incubator throughout after every hatch.

A GIRL'S PROBLEM

How to Feed Herself When Running Down.

A young lady in Ohio writes: "Some time ago when I was a stenographer my health began gradually to decline, and I faced the problem of finding relief or leaving my situation. Worry added to my trouble; I became dyspeptic and nervous and suffered with insomnia and restlessness at night.

"I was speaking of my illness one day to a trained nurse, who recommended that I begin a systematic diet of Grape-Nuts, as she had seen its beneficial effect upon several of her patients.

"So I began to use the food conscientiously. In about two weeks time I began to feel stronger and more hopeful; my digestion and appetite were better; I was less nervous and could sleep. I continued steadily and soon began to think success lay somewhere in this big world for me.

"My work grew smoother and easier and after seven months on Grape-Nuts I could work easily and without feeling exhausted.

"To-day I am filling a much more responsible position and do the work satisfactorily. I attribute it all to Grape-Nuts which I still continue to use. For a palatable and healthful diet, there is nothing on the market to equal it."

"There's a Reason." Name given by Postum Co., Battle Creek, Mich.

Ever read the above letter? A new one appears from time to time. They are genuine, true, and full of human interest.

PIGEONS PAY
Better Than Chickens
Young pigeons (squabs) bring 40 to 60c each when 3 to 4 weeks old. Big demand in city markets. Each pair of pigeons easily clear \$4 per year. Always penned up. Very little space and money needed to start. Free Book explains all. MARSHALL SQUARE CO., Dept. 10, ANSEL, IOWA. **FREE BOOK**

A Good Position Open

Here is a chance for someone in your county to get a permanent position that will pay well. It is mighty pleasant work, and we guarantee good pay for the man who is willing to hustle.

If you want to make more money than you do now, or if you are looking for a good job, write to us to-day.

FARM AND FIRESIDE, Springfield, Ohio

WRITE FOR BROWN FENCE BARGAIN BOOK AND SAMPLE
Over 25,000,000 rods Brown Fence already sold to 400,000 farmers. Factory Prices. Freight Prepaid. 150 styles, 13c per rod up. Gates and Steel Posts, too! Write postal. **THE BROWN FENCE & WIRE CO.** Dept. 21E • • • Cleveland, Ohio

Rock Bottom on the Very Best Steel Roofing Ever Made

This is positively the greatest roofing proposition ever made. Before you invest in new roof covering, siding or ceiling, first learn about the one best—by far the best from every viewpoint, and cheapest. Take no chances. Get Edwards' Freight Prepaid offers and note the big saving.

EDWARDS' Reo Steel Cluster Shingles

actually cost less—outlast three ordinary roofs—no painting or repairs. Rot-proof, fire-proof, rust-proof, and guaranteed lightning-proof. Anyone can lay it, right over old shingles if you like.

Impossible To Rust Edges and Nail Holes

Every sheet of Edwards' Galvanized Steel Shingles, Roofing, Siding, Ceiling or finish is extra heavy galvanized, piece at a time, by our exclusive LIGHT-COTE patented process after sheet has been stamped and resquared. Side and edges are as heavily galvanized as body of sheet. Means no weak spots to rust or corrode. By means of Edwards' Patent Interlocking Device (see illustration) all nails are driven through underlayer of metal only—no exposure—no leaks.

Garage \$69.50 Up

Wide variety, many styles, all sizes of Portable, Fireproof Metal Garages, \$69.50 and up. Lowest prices ever made. Postal brings FREE 64-page Garage Catalog.

FREE Roofing Book

Edwards' Reo Steel Cluster Shingles, V-Crimped, Corrugated, Standing Seam, Painted or Galvanized Roofing direct to you at "Rock Bottom" factory prices. Write today for FREIGHT PREPAID OFFER on the lowest prices ever made for World's Best Roofing, Free Samples and Roofing Book No. 758.

THE EDWARDS MFG. CO., 708-758 Pike St., Cincinnati, Ohio

Note construction of Patent Interlocking Device, protecting nail heads from weather. making roof absolutely water tight.

SPECIAL OFFER COUPON

THE EDWARDS MFG. CO., 708-758 Pike St., Cincinnati

Please send FREE samples, Freight-Paid prices and World's Greatest Roofing Book No. 758.

Name.....

Address.....

Largest Makers of Sheet Metal Products in the World

Fireman Duffy

A Love Story About a Girl, Two Men, and a Fire

By JOHN A. MOROSO

Illustrated by George Avison



Duffy's ears were cocked as I jumped to my place. "Go!" I shouted

see. They cost so much around in Washington Market that the old girl asked the poultryman if he thought she was Mrs. John D. Rockefeller, Jr. I want you to come over to the flat with me for the big eats."

It was more of an order than an invitation. He gave a little grin, one of those poor little grins that makes you think it hurts a man all over to part with. I felt like asking him to take half of it back; he was too generous.

"I'm with you," he said, without taking his pipe from his face.

We went over to the flat. My Mamie just laid herself out to put the heart back in that Mick. My Mamie can stand up with any girl for looks. Her hair is nice and brown and there is plenty of it that never saw the inside of a store. She's got big blue eyes with a laugh in them for every minute of the day, and she is as husky as she is pretty. We've been married four years and we've got four young ones. That's my Mamie, and there ain't a wrinkle in her face.

The chickens were ready for us, brown and steaming and smelled so good that both Mamie and I put it down right there that if the Lord took us both into heaven we'd ask Saint Peter to give us a little flat around on the real Pearl Street and credit at the butcher's until I could learn to play a harp and get a regular

just feel his heft!" With that the woman dumps the kid in Duffy's arms.

"Take 'im back, for the love of Mike!" yells Duffy. "I might squash him." We had a big laugh, and when Duffy finally got over his scare and lit his pipe he chuckled.

After one pipe it was time to beat it, so we shouted good-by to Mamie, who was nursing the infant, and started for quarters.

When we got to the engine house Duffy says "Thank you, Captain," and goes up-stairs to the dormitory. I was talking to the lieutenant about some trouble with the supplies department when Mrs. Doherty, who tidies up for the men, come hurrying down-stairs out of breath and whispers to me that she thinks Duffy is sick. I ran up to the dormitory and found him lying on his bed, face down. The big muscles of his shoulders seemed to be quivering.

"What's the matter?" I asked.

For a half minute he struggled with himself and his shoulder muscles bunched tight and hard.

"Nothing," he said.

I was worried, but went away. "Was that big Jim Jeffries of a man crying?" I wondered.

"No," I said to myself; "he had too much fried chicken; it's indigestion."

II

I DID all that a captain could do for a fireman in trouble, but I didn't make any headway with Duffy. I tried to get him to eat with us two Sundays following his Fourth of July visit, with no luck.

Fall, springtime, and summer come again and all of us working hard and studying for promotion. Duffy refused to take any examinations for promotion, although the Board of Merit had tabbed him with a medal after two heroic rescues.

There were changes in the company—death and promotion—and one day my battalion chief notified me he was sending me a good man to fill in the last place made vacant.

"He's a ten-thousand-dollar beauty," the chief informed me.

"I give a laugh to him right now," I told the chief. "This ain't any company for pretty people. What we want is a monkey like Finnegan or a Ajax like Duffy."

"You'll change your mind," said the chief. "He's handsome, but there isn't anything can beat him."

"Is he Irish?"

"No; his name is Graham and he come from out West. He's been in the department two years and is married and sober. He's got the punch, although he is a quiet fellow. I'll send him around to-morrow afternoon so he can begin on the night trick."

I was waiting at the door for him the next afternoon about five o'clock when up Chambers Street from the Sixth Avenue L there comes at a fast walk as handsome and trim a lad as I ever saw in the uniform. He looked like one of those silky guys you see in the pictures about the Four Hundred doings, but from the stride of him I knew him to be a man and no mouse. He was six foot, and built so evenly that it did my eyes good to take him in all over. His cheek bones were high, his nose straight, and he had a jaw with a purpose, believe me. His eyes were gray under straight brows and as he come up to me and touched his cap he looked at me full on the level.

"The first battalion chief sent me to report for duty, sir," he said.

"Oh, is that so?" I asked him. "What's your name?"

"Graham."

"What's the rest of your name?"

"John."

That fine, handsome face of his sort of broke into ripples, for he knew I was stringing him along.

"Johnny Graham is my name in quarters, Captain," he said.

"Not the famous Johnny Graham that saved the Zinnsmeinder family in the Chrystie Street fire a year ago?" I asked him.

His reply was a grin, not a poor, sickly little grin like the one Duffy gives, but a broad, real grin that would start anybody smiling in spite of themselves.

It was a beautiful, clear, crisp late summer afternoon and I looked up to the patch of blue over Chambers Street as if trying to decide whether I would take him or send him back to the chief.

"Do you happen to know anything about fighting a fire?" I asked him.

"I finished my probation period a year ago," he said.

"Come in, Johnny," I told him as I dropped under the chain and stepped in the house. "There's two alarms sent in already from Mulberry Bend and we roll if there is a third."

Just as Johnny ducked under the chain Duffy come from behind the steamer and the two faced each other.

"Hello, Duffy," said the new man, holding out his right hand.

Duffy's little eyes spit out two streaks of white flame, his jaw dropped, and his body stiffened. His red hair seemed to rise in the back like the feathers of a fighting cock. He kept his right hand close to his side and I saw his fist double slowly and tightly.

In a second I realized that this handsome young fellow was the cause of the change that had come over Duffy three years before.

EW

HE WASN'T what you'd call a handsome guy, but many was the woman to look at him twice and have her eyes light up bright. Duffy had a four-alarm head of hair, red as a lumber-yard fire, and he went to the barber so seldom that when he did get a cut it was hard to recognize him.

He wasn't a tall man, but he was a big one and a sound one, with chest enough for two firemen. From driving Number Twenty-nine's big team his muscles were bunched up behind his shoulders and his biceps were as big as two coconuts.

When a steamer as big as Number Twenty-nine, with three horses as powerful as ours, begins to eat up the asphalt of Chambers Street the man in the driver's seat finds it easier to get along without a hat or coat. So when Duffy leaned over the big white buttocks of our team, his blue flannel shirt open at the throat, his sleeves rolled up to give his muscles full and easy play, and his red hair flowing straight back from his coco, he was some sight to see, take it from me, the captain of Twenty-nine.

Three years ago that Tad was as cheerful a fellow as ever swapped a joke in an engine house. I was a lieutenant then, and had just taken my examination for promotion. I remember the change when it come over him. He had a week's vacation, for sickness and death had cut into the company and he had been working overtime like a Trojan. He left the house rigged up in a dandy new suit and laughing and joking with the fellows as he told them good-by. After his week off he come back and got on the job without saying a word to a man of us. After that he minded his own business strictly, kept to himself, and when things were dull and the men were all skylarking he would sit in a chair in a corner, silent, smoking, and peering out at nothing with his keen little blue eyes.

Everybody liked Duffy, and that's why we noticed it so much. Blue spells come to the best of us, but when a thing like that runs into a month and then into two months and finally into two years, by cripes, it's awful!

No captain ever loved his men better than I loved mine, and Duffy was the best in my crew. He was clean, straight as a string, powerful as Jim Jeffries in his best year, and gentle as a girl. He loved his job so that I saw him cry like a child once when I ordered him to quarters because his lungs was caked with smoke and cinders and he was breathing like an elephant with the croup. During the first year of this change I argued with him every now and then to forget his grouch, but he would just sit still, smoke, and say nothing.

Then he got to sticking around quarters when he was off duty. He would have worked twenty-four hours a day, but the regulations wouldn't permit that. If he was hanging around this way when we rolled he would close up after we got away and stay in that empty house without horse, dog, man, or cat, and sit and smoke, and think God only knows what. When we would come in he would open up for us and go over to his corner.

"Duffy," I said to him one Fourth of July, "my Mamie has got some fried chicken that would make the glummiest of the holy martyrs mighty glad to

job in the choir. I give the old girl a good squeeze that made her turn rosy as she kissed me. I was teasing with her and the two oldest kids were pulling at her apron when my eye fell on Duffy. His back was turned to us and he was staring out the window at the clothesline just as if it was some new piece of fire apparatus. I dropped Mamie just as he begins feeling in his pockets for his pipe and tobacco, and started in to do the carving.

"Sit in, Mr. Duffy, please," says Mamie, pulling up his chair.

Duffy put his pipe and tobacco back in his pocket and sat in. Little Mamie and little Michael sat on either side of him. They ducked their heads and my Mamie and Duffy ducked theirs as I said grace:

Bless us, O Lord, and these Thy gifts which from Thy bounty we are about to receive through Christ our Lord. Amen.

I didn't miss a word of it, although I don't get to say it every day, being a fireman.

"You got 'em already, Captain," said Duffy as Mamie passed him his plate.

"Got what?" I asked him.

"You done received 'em," he replied.

"Received what?" I didn't get him at all.

"The gifts of God."

It sounded solemn as it came from his lips. I didn't know what to say, but Mamie was there to save me.

"YOU'RE right, Mr. Duffy," she says. "There ain't anything else God could give Mike and me except strength to bear any affliction He might send us."

We didn't have any more time for conversation. Mamie had to watch the new baby, and the one that come just before him was crawling on the floor upsetting furniture. She had to pass plates at the same time and keep the two kids at the table from choking.

Duffy might have had all the sins and sorrows of the world on his conscience, but he never knew what a real potato was until he ate one of my Mamie's. She cooks them so that they're nice and flaky and fall to pieces the moment you pick up your fork. And her biscuits! They were that light we had to put the windows down to keep them from blowing away.

When we had eaten fried chicken until we couldn't hold no more, me and Mamie took Duffy into the bedroom to see the new kid.

Duffy looked at it like a horse would look at a piece of paper that had been blown from the street into his stall. I was afraid he would stampede.

"He's two months old," Mamie told him. "Gee,

Johnny's face turned red when he dropped his hand to his side, and I saw his right foot move back as if he was getting ready for attack or defense.

I stepped between them.

"Look here," I says, "you men can settle your troubles outside this engine house, but the first crack either one of you makes under this roof up he goes for trial."

Graham saluted me and nodded his head as Duffy turned on his heel and went behind the engine again.

I followed the new man up-stairs, pretending to show him the layout of his new quarters but meaning to get at the bottom of this row.

"I may just as well tell you all about it now, Captain," said Johnny Graham when we reached my room. "Duffy is a one-girl man. There ain't many of them, I guess; but it couldn't be blamed on me if we fell in love with the same girl and I won her."

"Oho!" says I to myself.

"It was easy sailing for Duffy before I met her," he went on, "and I understand he had bought the ring and had time off. She hadn't exactly promised him, but she was close to it, and then I met her. She took me and we are married."

"It's a wonder he didn't kill you," I said.

"He had his chance," replied Graham. "We fought for an hour and a half back of a stable in Greenwich Street one Sunday afternoon. There weren't any seconds, no referee, and no rounds."

"Who won?"

"It was a draw, Captain."

Zing! It was a third alarm.

We bounced from the room and jumped for the pole. We shot down to the rubber mat with Johnny's heels just touching my head, the other men piling after us.

Nick, the center horse, was at the pole with the harness snapped on him. Duffy snapped in Bill and Pete and sprang into the seat. As he gathered the reins the team did little rocking-horse stunts to get the feel of the floor for the big lunge into the street. Cinders, the mascot, was already outside clearing a way for us. Johnny Graham piled in the hose tender with the men.

Duffy's ears were cocked as I jumped to my place on the ash pan beside the engineer. "Go!" I shouted.

[CONCLUDED NEXT ISSUE]

Missouri's Good Roads Days

[CONTINUED FROM PAGE 3]

addition to this, \$2,199 was donated by public contribution in cash.

The Macon Good Roads Club is another big booster in the State. When it was organized less than three years ago its members never considered the importance it would assume in the affairs of the county and State. It became a very practical working club. Even the women of the county made public good roads talks, and there have been a number of women each year who voluntarily do road work with drags. A fund of more than \$2,000 was raised the first year for permanent road work outside the township.

Last year Col. F. W. Buffum, state highway commissioner, estimated the number of miles of improved highways in Missouri to be 124,533. He places the miles of unimproved dirt roads at 63,370, and improved dirt roads at 54,246. There are 3,420 miles of gravel road. He estimates the mileage of highly improved roads as follows: Macadam, 741; telford, 76; macadam binder, 600; patent surface, 50; sand clay, 570; chat, 700; miscellaneous, 342.

In 1913, the first year to have good roads days, \$4,753,315 was paid out directly, exclusive of cost of supervision, for improvement of highways.

During the historic good roads days in Missouri a vast amount of work was done on the Santa Fé trail, the Ozark trail, the northern route, or Lewis and Clark trail, and other old trails. But especially was the work poured onto the cross county seat highways by an unselfish local public in each county seeking to get certain roads into condition to pass the state inspection and obtain the \$15 a mile allowable to such approved roads under the Painter state road-dragging law. More than 11,000 miles of such roads are now approved and receiving \$15 a mile from the automobile and corporation license fund of the State.

The work of good roads days, the sentiment stirred thereby, the better grade machinery installed, the new spirit of co-operation aroused as to road-making, the disposition of citizens and road makers to study and apply the new methods—these things have improved the highways of Missouri 30 per cent. As Governor Major has said, "The good roads spirit is still alive, and will continue to battle for road betterment throughout the years to come."

E-W

Uncle Job's Will

After the Knapps Receive a Bequest

By ANNIE HAMILTON DONNELL

ASHER made a final stand. His weathered old cheeks were slowly reddening; now he saw the figure of his humiliation at Millicent's side.

"I guess you better let me decide the planting, Milly, being as I've done it up to now. There ain't anything so good in rough, new soil as potatoes. You want the best thing done."

"I want corn 'done.' I'll call Jerry to come and help you dig up the potatoes you've got in. I guess I know what I want planted in my own land."

It was odd what fanciful thought in the sudden stab of that last sentence came first into the slow mind of Asher Knapp. It seemed to him he could not bear to have the boy, Victor, witness his humiliation. He had an impulse to hold up a warning, pleading hand, and say, "Not before the boy, Milly; don't say it before the boy."

"I guess you forgot who Uncle Job willed his farm to," Millicent added shortly. And it was true. He had forgotten.

Millicent's ire cooled quickly. She had been too long a patient, good-natured woman. Her eyes swept the big expanse of the new-plowed field thoughtfully.

"Well," she said, "I suppose what's all planted may as well stay in the ground, but you can put corn in the rest, Asher. Let Jerry come and help."

The little episode was soon over. Millicent, her good humor returned, strayed about for a while over the farm, and then went back to the house. It did not occur to her that she could have wounded anyone's sensibilities, least of all Asher's; she had never connected Asher and sensibilities in the same thought.

The spring merged gently into the summer and the big farm took on a prosperous, well-fed aspect. Millicent glowed with pride when neighbors and passers commented on its improvements.

"Tell me I'm not a farmer! Asher, why aren't you proud of me? I believe Uncle Job would be. If he's looking, anywhere, he'll be pleased with the big cornfield and the new fences. And the young orchard and the grafting—Asher, say it's going to be the best farm in the county."

"It's going to be, Milly," he echoed soberly. His glance lifted from his work and swept the outstretch of cultivated fields with its tender fringing of woods. It was a pleasant sight, but Asher Knapp sighed. The hurt in his soul rankled.

Millicent hired new men for the haying, and the work went forward at a leap. She gloated over every fat load that lurched toward the barn. With the extra hay money she meant to have pipes laid from the well to the house and the barns. After that there were other improvements.

"There's no end to 'em," she laughed. "All I want is money enough."

One day after haying, in the lull that followed, she missed Asher. He did not answer her horn call to dinner. Jerry came up-field, shirt-sleeved and perspiring, but no Asher.

"Ain't he coming soon? Where'd you leave him, Jerry?"

"Me? I ain't left him anywhere. He ain't there."

She was vaguely frightened. Dinner waited while she searched and made the hired man search. Asher not "anywheres!" She could not understand.

"Gee," Jerry exclaimed suddenly, as

PART TWO

the hunt went on, "I declare I clean forgot the letter!"

"The letter!" shrilled Millicent. The anxious lines in her face gave it a strange aspect foreign to its customary calm. She caught the man's coarse sleeve and shook it. "What are you talking about? What letter?" she repeated.

"Why, the one he give me—likely someone comin' from the post-office give it to him. 'Give it to Mis' Knapp,' he says, 'next time you go up to the house,' he says; 'An' mind you don't forget.' Gee, if I didn't!"

She took it indifferently. Mail was of less interest to her just now than Asher's whereabouts. She did not even peer curiously, woman-wise, at the handwriting and postmark. It was hours later, when the search given up in despair, she had dropped, exhausted more by dread than labor, on the couch, that she took the letter out and turned it idly in her hands.

It was from Asher—Asher! Convinced suddenly of that, she tore it open in a fever of excitement and read its simple little message. There were few words:

Bud Harper was going past. You know Bud—lives on the Old Road up home. I decided to go along with him, and maybe I'll be gone a day or so. It's kind of an easy time just now. Jerry can do everything without me.

Affectionately,
ASHER KNAPP.

It was written in evident haste with a pencil, but there were evidences of careful spelling and straining toward straight lines. To Millicent Knapp, reading it the third time, it was hauntingly pathetic, though she could not have explained why. She had never had a letter from Asher before. He had never been away from home, nor had she. When she took up the broken threads of her work after her disturbing search it was with a sensation of loneliness—worse than that, of widowhood, as if Asher were dead. She could not endure it.

"I suppose he's going to stay at Bud's, and none of his nightshirts are gone—he never took one! Asher's a regular baby!" She found herself choking unexpectedly. He was all the baby she had ever had, but she had never babied him. A hundred little ways in which she might have done it occurred to her now. She might have carried him down little luncheons when he was at work in the field, have made him gay slippers and neckties, have petted him a little, kissed him—

"I'm going to take him his night-shirt," she uttered aloud. There was immediate need of saying something prosaic; her eyes were full of tears. She made her plan promptly. It was three o'clock now. By train it only took an hour to go "up home," but by team it would require at least three. She could be ready to start in fifteen minutes. If she wished she could stay overnight at Marthy Drake's, half-way back.

Millicent Knapp did not choose to confess to herself that the nightshirt was an excuse. She got herself ready hurriedly, while Jerry, at her command, harnessed the horse. She was used to driving, and the prospect of a long ride in the "cool of the afternoon" was distinctly pleasing.

Up home Asher Knapp was mowing the old orchard with a hand scythe. The place had not as yet found a purchaser and had already taken on an

abandoned appearance, but to Asher it looked pleasant. He had had the haying done on shares, but the thin spatter of grass in the orchard had not been considered worth the cutting. Asher had welcomed the sight of it with a flutter of his old heart. Here was something he could do on the old place—his place. He borrowed a scythe and went to work, swinging the big thing lustily. The joy of independence was in his soul again. Coming back here and cutting these scanty spears of grass of his own, on his own farm, was like gentle balm, for the moment, to his wound. If Milly could only understand!

She saw him from the road, though he did not see her. For a little she sat and watched him.

"He looks as if he wanted to," she thought in surprise. And for what other reason would he be mowing a few scattered spears of grass?

"He's having a good time," mused Millicent. "I believe that's what he came for—not to visit Bud Harper at all. Asher's been homesick."

Understanding was coming slowly. The chief ingredient was still lacking; Millicent Knapp never quite knew how that came to her. Perhaps she noticed the independent swing of the scythe or the straighter set of the old shoulders, the way Asher stopped and examined the apple trees, the way he looked up at the deserted old house, the way he exulted in his own again. Perhaps she heard him whistle.

Gradually she came to a full understanding. Things cleared up as if after a thick fog. Then she turned and drove the long way back, the night shirt forgotten under the seat.

Asher stayed two more days and two nights. The third day he went back to Millicent by train and walked up from the station. Millicent saw him coming and went down the lane between the rows of maples to meet him.

"Why, Milly!" He was not used to being met.

"I should think it was 'Why, Asher!'" she laughed. They were originally of the same height, but Asher's back was rounded more than hers, and she had to stoop a little to kiss him.

"Why—why, Milly!" He was not used to being babied.

"Come right along up to the house. I've got supper all ready." She did not say she had had it ready the night before. "You look as if you needed a cup of tea. Asher, why don't you build a sheep barn and keep sheep? You've always wanted to—but maybe you don't want any of my interfering." She was laughing again. He listened and looked, in a maze. It was Asher's turn not to understand.

"There, sit right down and I'll pour the tea. No, Jerry ain't coming; he's had his supper. We're just by ourselves, Asher. Don't you want to look at the—the paper?" She spread it out before him, and he saw with a strange stirring of his blood that it was not a newspaper. He sat staring at it. Millicent's hand rested lightly on his shoulder.

"Yes, it's the deed. Read it, Asher. Read it clear through. It's your farm, and if you don't run it it'll go to rack and ruin. A woman can't run a farm—I don't know what Uncle Job was thinking of!"

New Puzzles

A Family of Twelve Sons

Can you guess the "boys'" names? (Twelve words ending with son.)

1. A poisonous weed.
2. Harmony.
3. A motive or cause.
4. Any human being.
5. Venom.
6. Disloyalty.
7. To accustom.
8. The flesh of a wild animal.
9. A small plumb.
10. A clergyman.
11. A criminal offense.
12. A prayer or supplication.

Answers to Puzzles

Puzzles Printed Last Issue

Lesson in Comic Geography

1. Sardinia.
2. Seine.
3. Rocky.
4. Hood.
5. Atlas.
6. Worms.

All Around the House

The Library

Stories, stationery, reading lamp, paper weight, scaling wax, magazines, pen wiper.

A Little Charade

Malady.

Letters From a June Bride



BETTY and Billy were engaged to be married. After much traveling around Billy found a farm that suited their fancy and purse. They were married in June and moved onto their farm.

One of our editors, who knows both families, asked Betty's sister one day recently how Betty and Billy were getting along. The sister showed him a letter she had just received from Betty. It was so interesting we asked and were given permission to print it. We have also made arrangements to print one of Betty's letters in Farm and Fireside the last issue of every month.

Here is an excerpt from the first letter, which will be printed in the next issue, the July 15, 1916, number: "There was a short prayer, and then followed the marriage service. We had read it over once only, so that it was not surprising that Billy, in his manlike eagerness to have it over with, mistook one of the impressive pauses for the end of the service, and kissed me without so much as waiting to be formally pronounced man and wife."



The Neighborly Man

By W. T. George

HE MAY be ignorant of Latin and Greek. He may murder the king's English. He may be homely, awkward, and unlearned, but he is always a blessing to the community in which he lives.

He enjoys sharing his blessings—it gives him a wonderfully keen appetite for what is left. Do his apples ripen or is his sweet corn ready for the table before his neighbors', immediately his neighbors' table as well as his own are laden with the bounty of his garden or orchard.

He is a friend to the discouraged man or woman whose need of a helpful word is greater than their need of health, gold, or any other temporal blessing. The neighborly man by some sort of unerring spiritual instinct discovers that need and supplies it.

The neighborly man is never envious of his neighbor's good fortune—envy has no place in his make-up or he would cease to be neighborly, for envy and neighborliness are sworn enemies. Does some good fortune befall you, he is the first to congratulate you—this neighborly man. One might almost think it was his own orchard that was bowed down with its wonderful harvest, or that the legacy you had just received was his own, his joy is so evident.

The neighborly man remembers that we are to rejoice with those that rejoice, as well as to weep with those who weep. He rejoices when he sees your children make a name and place in the world. He always had faith in your John, anyhow. Did his watermelon patch suffer in John's youthful days, he simply chuckled and said he planted a few extra hills for John's benefit. When his early apples disappeared rapidly he only said, "Boys always did like early apples."

When the clouds of sorrow close about you the neighborly man does not talk to you by the hour about the mysterious dispensations of Providence, but he looks you in the eyes—and his own eyes are misty—and he clasps your hand, and takes thought for you, and does little things for your comfort, until you thank God for the dispensation of Providence that gave you such a neighbor.

The neighborly man is always charitable in his interpretation of a neighbor's words or actions. He looks for the best in people, and sees what he looks for.

May the tribe of neighborly men increase and their kindly ministrations be multiplied in the earth.

Words

By G. W. Tuttle

WORDS are the raiment with which we clothe our thoughts. To be able to set them in order, to express intelligently our thoughts, to make evil seem abhorrent and righteousness desirable, is no slight thing.

Thought ever seeks expression. A man may be vile of heart and may think his vile thoughts and purposes are carefully hidden from his fellow men, and ere he be aware of it speech has betrayed him and words have been scattered that can never be gathered up again.

Do we try to conceal good thoughts? Alas, they must rise to the surface or they will wither and die. The Lord deliver us from turning our hearts into a graveyard! Rather may they be fountains that overflow, and whose waters are a blessing to many.

Our speech is the index to our hearts—the words that we use are just hints of the pages within that are filled with good or with evil.

We cannot always be on our guard, and it is impossible to be always pure of speech unless the heart be pure, for "the stream cannot rise higher than its source."

We are either filthy or pure in speech. We honor or dishonor God every day by our words. We please or displease Him every time we open our mouths. We are either truthful or we are liars.

Wise words are as stepping stones that lead up to the heights of usefulness, while sinful words are stumbling blocks over which many fall into perdition.

Our words make life easier or harder for our fellow mortals, every day. Everywhere there are discouraged people—oftentimes a word of encouragement is to them what the oasis in the desert is to the weary and very footsore traveler.

Eternity alone will reveal both the miracles that helpful words have wrought in the lives of men and the mischief done by careless, thoughtless words.

When the quiet of evening is at hand, and its shadows are falling softly about us, how often we wish we could unsay words that have passed our lips during the day! Perchance it has been a strenuous day, and people have been exacting, and the fountain of our patience had dried up, and we spoke hasty words; or, possibly, we have thoughtlessly wounded the feelings of a friend, and in the stillness of the even-time our conscience rebukes us and says, "You were not placed here to make life harder, but easier, for your fellow men. Have you done this today?"

Our words may be sweet as the choicest store Of honey in forest tree,
Or sharp as to men is the cruel sting Of the robbed and angry bee.

Our words may point to the depths below; They may turn men down to hell,
Or point men up to the heights above, Where they may with the Master dwell.

The Individual Sphere

By Anne Hetherington

EACH one of us is a world in himself, I am thinking, striving to make an orbit of his own and revolving around the central light, the Son of God, from which all good things come. Every sphere has an individuality; no two lives have exactly the same troubles, perplexities, joys and sorrows. No two spheres revolve in just the same way or at identically timed speed, but we all have the one central interest around which we continually revolve.

Has it ever occurred to you to think that it is this very reason which collects a congregation and takes us all to church? We come with different hopes and trials and petitions in our hearts. We pray individual prayers and ask for special help for our own troubles that are always a bit apart from those of others, but we all ask from the same great source of comfort—our Sun that shines eternally.

I know a woman who is heartbroken because of a wayward daughter. I know a whole family that prays for the curse of drink to be taken from the father who is so dearly loved. I know a mother seeking a son who went away and has not been heard from in many years. I know a delicate young wife who prays earnestly for a tiny baby upon which to pour her love and care. I know a man who is an expert in his own line, and in one moment of carelessness made a mistake that caused a loss of thousands of dollars to his employers and cost him his position.

He will never be content until he has been reinstated and permitted to repair at least part of the damage he did, and he prays and prays for the opportunity. All individual cases, all in need of comfort, all praying to the eternal God.

He stands with His arms outstretched, ready to listen, ready to answer, giving freely, asking little. Are you looking for light in a dark place? He is the light. Are you seeking a way, stumbling in a rocky path? He has said, "I am the way." Do your poor hands feel feebly along the walls of a room of sorrow, looking for the doorway through which to pass into a great peace? He is the open door. Are your eyes dim with tears and seeking the sunshine? He has said, "Lift up your eyes to heaven." "Seek and ye shall find." "Come unto Me all ye that travail and are heavy laden."

Gold by the Backload

By Edgar L. Vincent

IT IS what we are all working for—money. What do we want of it? God only knows! For in and of itself it is the most useless thing that ever was dug out of the earth.

A ton of gold weighs less in the scales of real happiness than a feather's weight of peace. And peace you cannot buy with a backload of gold. Peace is a gift; not unbought, it is true. It costs the most valuable thing in all the world—goodness of heart.

Not the goodness that selfishly sings hymns and sobs out its prayers to a God who sees and hears but who asks for service, and not simply professions; but the goodness which loves every fellow man, which helps the man up who has fallen down, which pities and gives the best it has to give, which sees in every living creature something good. Here is gold, the gold of a pure heart.



For a Lace Yoke

By Lillian Grace Copp

WHEN making a lace yoke there is apt to be much waste of material, but this may be entirely avoided by cutting a yoke pattern out of fairly stiff paper—newspaper will answer the purpose equally well—and then making your yoke on the paper.

If it is to be of insertion and tucks, or made of different widths of insertion, begin work by laying first one strip on your pattern, then another with the edges slightly overlapping. Stitch each strip as you work, and be sure that each strip comes well over the edge of your pattern. This is to allow plenty of material for cutting the yoke.

On reaching the shoulder let the strips run up over the top of the pattern. After the yoke is finished the paper can easily be torn away. Cut out your yoke and you will find that not only have you eliminated all waste of material but that your yoke will fit perfectly.

To Make Neat Seams

By Mrs. Anna S. Casper

OVERCAST or fell all seams to keep them from fraying. The fell makes the work the neatest. To fell a seam, place the goods, one piece a little farther out than the other; stitch with the machine. Turn in raw edge, and then turn in again and stitch down flat like a hem.

Cutting Bastings

By Mrs. John Coleman

WHEN taking basting threads out of silk it is best to snip the threads with scissors to avoid cutting the silk.

Housewife's Letter Box

Root Beer—Ingredients required for making root beer are: Ten gallons of pure, fresh, lukewarm water, one pint of root-beer extract, eight pounds of granulated sugar, one cake of compressed yeast. To combine them dissolve the sugar in the lukewarm wa-

ter, add the root-beer extract, then the compressed yeast, which has been thoroughly dissolved in a little cold water. Mix thoroughly together. Strain; then bottle. M. F., Kentucky.

Chili Soup—Mrs. R. B. W. of Missouri asked for a recipe for making chili soup. The following was submitted by Mrs. F. B. U., Illinois:

Cook until tender two pounds of chili beans. Grind one pound of beef, fry in a cup of lard until brown. Stir it around in the skillet occasionally while frying. Add to the cooked beans. Add some water according to the way you desire the soup. Season with one teaspoonful of caricin seed (this could be omitted if not desired), chili pepper, and salt to taste. This is also very good when warmed over.

To clean a Panama hat wash it with sweet skimmed milk, shape it with the hands, and set it to dry on a flat surface. L. O., Colorado.

Fruit Butters—In making butters from fruits of any kind, the housewife usually dreads the process of putting the fruit through the colander. My way of avoiding this slow and tedious task is, after cooking the fruit sufficiently, to turn it through a flour sieve. This eliminates seeds and skins. Some might be afraid that the acids will eat the tin from the sieve, but I have used my sieve for two seasons and it seems good for another year. Of course, care should be used and the sieve thoroughly washed immediately after using. MRS. B. H., Kansas.

A Coat Suggestion—Fasten the top button of your coat before hanging coat on separate coat hanger. This simple precaution will keep your fronts in perfect shape. L. G. C., Massachusetts.

To Slip Easily—Should a dresser or chiffonier drawer not slip in and out easily, rub the unvarnished edges with paraffin, wax, or soap. Also the same can be used on the running gear of an extension table. It will make a great difference. A. W. M., Utah.

Who Will Answer These?

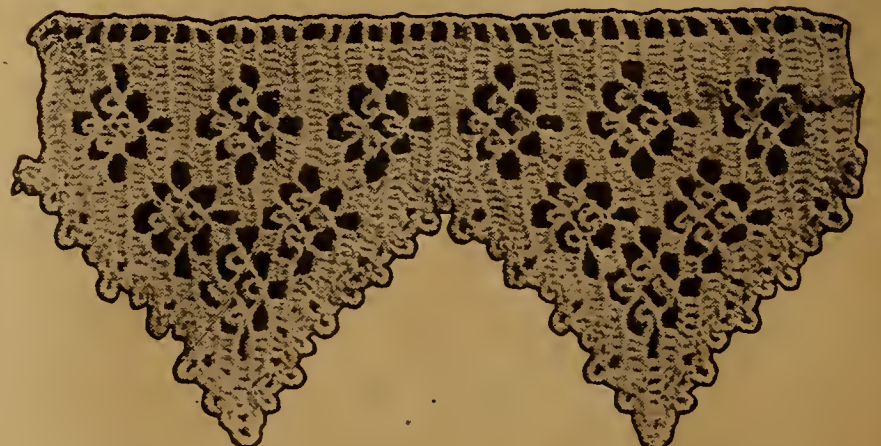
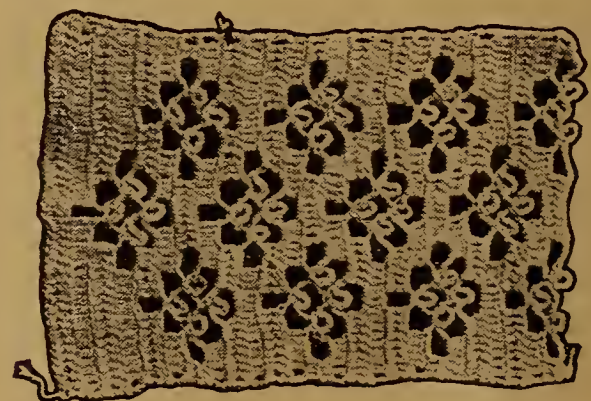
I should like to know how fish should be prepared before smoking. F. H., Wisconsin.

Will someone kindly tell me just the kind of crust to make for custard pies so that after standing for a few hours they will not be soaked? MRS. A. F., California

I should like a tested recipe for canning garden peas. MRS. W. A. S., Illinois.

Will someone please give a method by which I can prevent lime from clinging to a new teakettle? MRS. G. D. B., New York.

Attractive Insertion and Edge



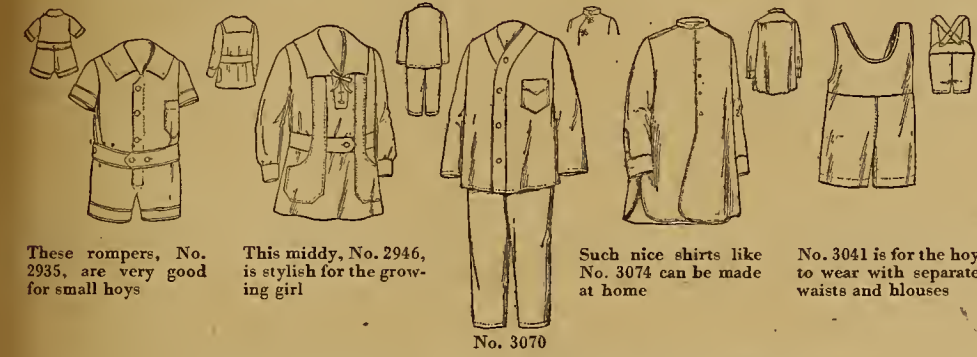
AN INSERTION and edge that can be put to a variety of uses. For the complete directions send four cents in stamps. Address your letter to the Fancy-Work Editor, Farm and Fireside, Springfield, Ohio.

Patterns for Summer Sewing



No. 3021—Long-Shouldered Waist, Surplice Style. 34 to 40 bust. Pattern, ten cents

No. 3058—Two or Three Piece Skirt with Applied Band. 24 to 34 waist. Pattern, ten cents



These rompers, No. 2935, are very good for small boys

This middie, No. 2946, is stylish for the growing girl

Such nice shirts like No. 3074 can be made at home

No. 3041 is for the boy to wear with separate waists and blouses

THE patterns illustrated on this page may be ordered by mail from the Pattern Department, FARM AND FIRE-SIDE, Springfield, Ohio.

No. 2935—Belted Rompers with Short Sleeves. 2, 4, and 6 years. Pattern, ten cents

No. 2946—Middy Blouse with Novel Pockets. 12 to 18 years. Pattern, ten cents

No. 3070—Boy's Pajamas. 4 to 14 years. Pattern, ten cents

No. 3074—Men's Shirt with French or Straight Collar. 14, 14½, 15, 15½, 16, 16½, 17, 17½, and 18 inch neck. Pattern, ten cents

No. 3041—Boy's Straight Trousers with Attached Stay. 2 to 8 years. Pattern, ten cents



This is the kind of wrapper everyone needs: it is suitable for so many different materials

No. 3066—Kimono with Shawl Collar. 32, 36, 40, and 44 bust. Pattern, ten cents

Copyright, 1916, by The Crowell Publishing Company

Recipes

Salmon Salad—Secure one can of good salmon, remove skin and bone. Cut into small pieces. Boil four eggs hard and cut them up in small pieces, also half an apple cut into small pieces or cubes. A little lettuce or parsley added makes it very attractive-looking. Mix with mayonnaise dressing and serve on lettuce leaves, with a slice of egg on top for garniture. C. O. B., Ohio.

To Can Beans—String and snap; then boil until tender. Have the glass cans ready, pour hot water in first, then empty out, fill with hot beans and liquid. Have some vinegar boiling. Put two tablespoonfuls in each can. Put on new rubbers, and screw the lid tight. Melt some paraffin and let it get partly cool, then plaster over the rubber so as to exclude the air. When ready to use the canned beans, unless the taste of vinegar is desired, the beans should be put in cold water several times and heated, each time draining the water off and putting fresh on. Then season with pepper, salt, and either bacon or ham fryings. These are almost as good as fresh beans from the garden. MRS. M. W. P., Indiana.

Sour-Cream Cake—Two cupfuls of flour, three teaspoonfuls of baking powder, one cupful of granulated sugar. Put into a bowl and mix. Melt one tablespoonful of butter in a measuring cup, break two eggs over this, and add one teaspoonful of flavoring and fill cup with milk. Bake in layers. Icing: Three tablespoonfuls of sour cream, thickened with confectioner's sugar; add flavoring and cocoanut. L. W. W., Montana.

To Pickle Beets—Wash and boil the beets until tender. Drain off water and cover with cold water. The skins will slip off easily then. To every quart of vinegar required (if the vinegar is too strong, dilute with a little water) add one cupful of sugar. Bring to a boil. Put in the prepared beets, bring to a good boil. Can in glass jars. B. E. C., Tennessee.

Fruit Salad—Cut the following into small cubes or pieces: Two oranges, two bananas, one apple, one small pineapple, or small can of pineapple, one cupful of green or white grapes, seeded, one cupful of English walnuts, one cupful of marshmallows. Put all to-

gether in a bowl and mix with mayonnaise dressing. Serve on lettuce leaves, with a cherry for garniture. D. S. B., Michigan.

Boston Brown Bread—One cupful of brown sugar, three tablespoonfuls of New Orleans molasses, two scant teaspoonfuls of salt, two teaspoonfuls of baking soda, two cupfuls of sour milk, one cupful of raisins (if desired), two cupfuls of Graham flour, one cupful of wheat flour. Divide this mixture into three cans which have lids. Let stand one hour, then put the lids on and bake one hour in a slow oven. T. M. D., Vermont.

Veal Loaf—One pound of veal, one-half pound of pork, season with pepper, salt, and summer savory, sage, or an onion. Break one egg in a cup filled with sweet milk, pour in the dish with the meat. Add two-thirds cupful of rolled crackers and mix. Place in a bake pan, shape in roll with the hands. Place two pieces of bacon on top. Put about one-half inch of water in the pan and bake. For picnics, or if you want to make the meat loaf look real pretty, boil two eggs hard, remove the shell, and when shaping the loaf place the eggs in the center of the meat mixture. When sliced down there will be the egg. M. E. S., Minnesota.

Household Hints

After the newspapers are read in our house, they are placed in a rack which hangs on the wall in the kitchen. There we find them of the greatest value. They are laid on the table when work of any kind is to be done, when pots are set down, vegetables peeled, cake mixed, or any other household tasks are in progress. If they are soiled they can be gathered up and burned in the range; if they are covered with peelings they can be picked up, refuse and all, and placed in the garbage can for collection, or burned in the yard as circumstances determine. In any case, when the newspapers are removed the oilcloth on the table is left white and inviting, and they save the continual wiping up which is necessary where only the oilcloth is used. JOSEPHINE HOWARD.



What The War Is Doing For The Farmer

The European war is not an unmixed evil; nor yet is it an unmixed blessing for this country. We shall not attempt to go into the ethical side of the question at all, nor shall we discuss "war brides," munition plants or other similar phases of the situation. We shall look at the war purely from the standpoint of prices for raw products, either produced here in this country or imported from foreign countries. And



GATHERING SUGAR CANE

amongst them those that have not gone up in price in spite of the war.

For example, here is a peculiar situation in regard to a heverage which is so universally liked that it has become almost a staple. The name of that beverage is Coca-Cola.

Now Coca-Cola, as you know, is really an agricultural product—a product of the soil. Cane sugar—the very purest and finest—constitutes a large part of Coca-Cola syrup. As you know, sugar has gone way up—so every glass of Coca-Cola you drink makes some farmer's heart gladder.

So it is with the pure fruit juices that, combined, produce the inimitable flavor of Coca-Cola. Not so much in quantity seemingly when you consider—a single glass of this delicious beverage, but enormous when the entire Coca-Cola output is considered.

Yet this product of nature—of the farm—increased in cost though it has been to the makers, has not been raised one penny in price to dealer—or to you. The price at the soda fountain and in the bottle has not risen one iota.

Now inasmuch as the rural population alone of America consumes millions of bottles and glasses of Coca-Cola every year, you and the other agriculturists of this country will not only be able to continue to please your palates and get delicious refreshment with this beverage at no increased cost, but you will be sending back to the farm bigger profits and more money at no greater expense to yourself.

HOW SUGAR CANE GROWS.

of course when we consider raw products we must carry the subject further on into the matter of the prices we get and the prices we must pay for finished products. We shall confine our consideration, too, to those products which have their origin on the farm either in the raw state or finished and manufactured into edible or wearable articles.

Let us take wheat, for example. We all know that the war has put the price of wheat way up. Very well—this means that the whole country: city, town and rural population as well as are paying more for their flour—therefore the wheat raiser should theoretically be getting rich on a product which it costs him no more to raise than formerly and for which he gets more money.

But wait a minute—there are other things to consider in this matter of growing rich off of the war. Cotton and wool and meats and farm machinery and sugar have gone up too. This means that while the wheat raiser is getting more for his product, he is also paying some other agriculturist more for his product. This cuts down somewhat on the profits the war is bringing to the farmer. Then it would seem that the best way to keep ahead of the game is for the farmer to pay the farmer who raises his necessities the increased prices that the war has brought about and when buying his luxuries or those things that are not bare necessities of life to pick and choose from

Evolution

Grandmother had the tub, mother the old style washer, you now can have the

Maytag Multi-Motor Washer

Swinging Reversible Wringer

which gives the housewife without electricity in her home the advantages of power washing that the woman with the MAYTAG Electric Washer enjoys.

It Is Absolutely Safe

Smooth-running—quiet—clean. Runs on gas, gasoline, kerosene or alcohol. Does a big wash for 5c. Not only washes and wrings but the belt wheel enables it to do all work about the house that a machine should do.

It runs the churn—the ice cream freezer—food chopper—bone grinder—runs anything that requires power. Servants do not object to washing the Maytag way. Your husband uses a machine to do a machine's work. Put a MAYTAG in your home to do the same for you.

FREE—"THE MAYTAG LAUNDRY MANUAL" containing valuable formulas, compiled by expert laundresses, on laundering all fabrics. A post card brings it.

THE MAYTAG CO., Dept. 70, Gen. Offices and Works, NEWTON, IA.

Branches: Kansas City, Mo., Minneapolis, Indianapolis, Fargo, N. D., Winnipeg, Man., Madison, Wis., Lincoln, Neb., Portland, Ore. Warehouses: Philadelphia, Detroit, Peoria, Ill., Sioux Falls, S.D.

There is a Maytag Washer of every type—hand—power driven—electric—all built to the enviable Maytag Standard.

DEALERS—We sell through you and for you. Write. Address The Maytag Co., Newton, Ia.

SEE THAT ENGINE

What's Going On

—in the automobile industry

THE automobile has come into your life permanently—or it soon will—to serve you day in and day out, on down through the years.

Its appeal is irresistible.

It is a fundamental factor in the affairs of modern, everyday life.

In the car you now select you are casting your lot with the fortunes of some one producer—or should be—for it entails needless expense to switch from one make of car to another.

It's time to "get right" on the automobile question.

So it is important to know what's going on in the automobile industry—more important than ever before.

Automobile producers have settled down into three fairly clearly defined groups.

Whether you own and drive your car on an extravagant or an economical basis depends first upon which group you cast your lot with.

You can drift into extravagance by following either of two groups, both of which make a strong appeal to the unwary.

* * *

To follow one of these groups is to fall into the extravagance of cheapness—the appeal, of course, is price.

The extravagantly cheap cars are necessarily undersized—too small for comfort and as a rule lack equipment.

You begin by buying at retail prices the needed equipment.

Before you are through you have spent the price of a better car.

And in the end you sell out or trade in, take your loss and charge it up to experience.

* * *

In casting your lot with the other of these two groups you fall into the other extreme of extravagance.

The appeal is individuality—exclusiveness.

This group embraces the great majority of producers but their output is small so they do not provide the machinery and facilities for large production.

They must perform laboriously and expensively by hand many operations which could be done better, quicker, more uniformly, accurately and economically by great machines.

The price of these cars must cover extravagant manufacturing and selling costs.

And upkeep is correspondingly expensive for garage men are unfamiliar with these cars and service charges run high because mechanics must spend as much time learning what to do and how to do it as in actually doing the work.

* * *

The third group comprises the large producers of quality cars.

The Willys-Overland Company is by far the largest producer in this group.

Season after season, for many years, the Overland output has far exceeded that of any other producer in this class.

As the Overland output has been greater, Overland material cost, manufacturing cost advertising and selling costs have been correspondingly lower, per car, than that of any other producer in this class.

And we have always given buyers the benefit of our lower costs.

Certain it is that we have led the way in all the great price reductions which have finally placed quality cars within the reach of the many.

Certain it is that those who have followed the Overland fortunes from the beginning have owned and driven their cars on a more economical basis than those who have followed any other producer.

* * *

Past performance is the best promise of future performance, and several very great advantages of the present point to future advantage for those who cast their lot permanently with Overland.

Between the small, light Overland Roadster and the Willys-Knight Limousine at prices ranging between approximately six and eighteen hundred dollars, you have the most complete opportunity for selection within the entire "economy range"—excluding both the extravagant ranges of the cheap and of the fanciful, which fall outside any true idea of economy.

From season to season you may switch from one car to another as fancy or expediency may dictate, and without the needless loss entailed by changing from one make of car to another.

Whether you buy the small four cylinder Overland or a larger Overland Four, the big Overland Six or a Willys-Knight; you get the lowest possible first cost for a car of its class—the result of the greatest production attained in quality automobiles.

* * *

And just as standardized manufacturing methods applied to the largest output have resulted in lowest possible first costs—

So also have standardized service methods applied to the largest number of running cars resulted in minimum upkeep costs.

Not only are Overland service stations everywhere, but garage men and mechanics everywhere have twice the experience and knowledge of Overlands as they have of any other car because there are about twice as many Overlands running as there are of any other make of cars of the same class.

And the inevitable result is economy, for everywhere men know Overlands and the quickest and shortest way to render almost any service in connection with them.

* * *

So, if true values sway you—true values in every phase and all phases wherein the automobile touches your life—then consider these things and reach your decision and with your purchase this season cast your lot permanently with those who have established and are continuing to establish these very real and true values which determine true automobile economy.

See the Overland dealer now. Talk matters over with him frankly. He will help you from his rich experience; to decide which Overland or Willys-Knight will serve your particular needs with greatest economy.

Get right on the automobile question.

Catalogues on request. Please address Dept. 714

The Willys-Overland Company
Toledo, Ohio



More Than 600,000 Copies Each Issue

LIBRARY
RECEIVED
JUL 12 1916

U. S. Department of Agriculture

FARM *and* FIRESIDE

The National Farm Paper - Twice a Month

ESTABLISHED 1877

5 cents a copy

Saturday, July 15, 1916

Western Edition



PHOTOGRAPH BY JOHN KABEL

Turning Low-Priced Feed into Wool and Mutton

Ann Arbor Baler

"THE BALER FOR BUSINESS"

The Folder Roller

You have heard the statement, "There's no tail to an Ann Arbor Bale." It's due to the folder roller. A clever device that tucks the tail of hay down into the bale. Bales store in smaller space—many hay buyers specify "Ann Arbor Bales."

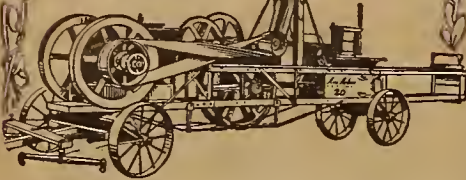
Just one of many features. Backed by 30 years' leadership. Holds the world's best records for big capacity and low up-keep cost.

Especially Adapted for Baling Hay, Alfalfa, Pea Vines, Soy Beans, Sudan Grass, Etc.

Many styles and sizes. Power presses in combination or separate outfits. Use any engine. Hitch your tractor to the Ann Arbor.

Ann Arbor Machine Co.
64 Broadway
Ann Arbor, Mich.

Write for booklet on Profits in Forage Crops



Auto-Fedan Hay Press

2-Horse
3-Stroke
Self-Feed.
Guaranteed

Two men can run it. Saves 1/2 the labor. Takes a feed with division board. Absolutely safe.



Catalog Free. Send us your orders and consignments of Hay. Auto-Fedan Hay Press Co., 1602 Wyoming, Kansas City, Mo.

WRITE FOR BROWN FENCE BARGAIN BOOK AND SAMPLE

Over 25,000,000 rods Brown Fence already sold to 400,000 farmers. Factory Prices. Freight prepaid. 150 styles. 13c per rod up. Gates and Steel Posts, too! Write postal.

THE BROWN FENCE & WIRE CO.
Dept. 21W • • • Cleveland, Ohio

30 DAYS FREE TRIAL

1916 Model and FREIGHT PREPAID on the new 1916 "RANGER" bicycle. Write at once for our big catalog and special offer. Improved Models, prices reduced. Extraordinary new offers. You cannot afford to buy without getting our latest propositions. **WRITE TODAY.**

Boys, be a "Rider Agent" and make big money taking orders for bicycles and supplies. Get our liberal terms on a sample to introduce the new "RANGER." Tires, equipment, sundries and everything in the bicycle line half usual prices. A few second-hand bicycles \$3 to \$8 to clear.

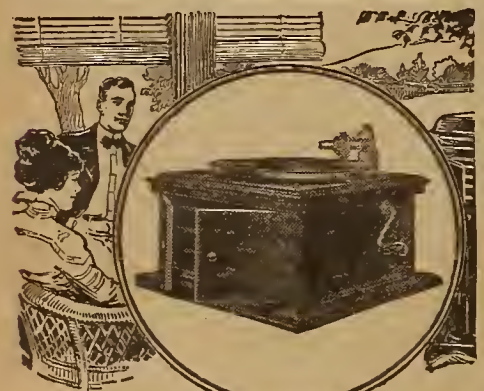
MEAD CYCLE CO. DEPT. H-83 CHICAGO

This Car GIVEN

and the Agency for your Territory

5 Passenger—26 H. P. Electric Lights and Starter—Demountable Rims—Non Skid Tires in Rear—Fully Equipped. A wonder car and you can get one without cost. Write now for full information. Learn how you can get this car without cost and make big money in the automobile business. Don't delay—the offer is strictly limited. Write at once. A postal will do. Address me personally.

Ralph Birchard, Pres.
Birch Motor College, Inc. Dept. 770, Tower Bldg., Chicago



Victrola VI, \$25
Other styles \$15 to \$400

THE Victrola gives everybody the kind of music they like best.

The many different styles of the Victor and Victrola make it possible for every home to have one of these wonderful instruments.

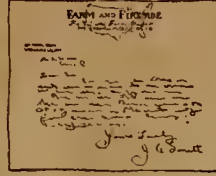
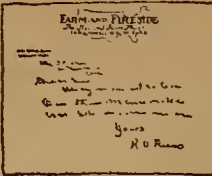
Hear your favorite music at any Victor dealer's. Write to us for catalogs.



You are sure of a square deal if you mention Farm and Fireside in answering advertisements.

The Editor's Letter

Farm Life in the Land of the Big Red Apple



THE land of the specialist always has its strong appeal. The specialty may be African diamonds, Alaskan gold, wheat, corn, orange groves, apples, fox-farming, or even squabs, frogs, or ginseng. The Ozark big red apple has deservedly won recognition as to both quality and good looks.

When one leaves behind the humid atmosphere of the corn belt and climbs the ridges of the Ozarks, inhaling the vitalizing air, he understands how the Ozark apple gets its superior color, crispness, flavor, and aroma. When I speak of quality I include the Ozark peach, pear, cherry, grape, cane fruit, and strawberry. They all absorb palate-satisfying properties from their environment—soil, sun, altitude, all play an important allotted part in producing fruit quality.

I had the pleasure of visiting the Ozark country a fortnight ago. As one leaves behind the vast level stretches of fat corn-belt land and gradually climbs the Ozark hills, the air acts like wine to the system. I went to bed in the humid, stifling air of a sleeping car in St. Louis and awoke in the ozone-changed air of the Ozark foothills. As our train toiled up the heavy grades and circled the winding cuts, we got magnificent views of hills, ridges, and ranges extending away into Arkansas. Much of the Ozark country is not strictly mountainous or badly broken, but to the born-and-bred prairie or bottom-lands farmer it looks rough and forbidding. Not fruit alone by any means is to insure the best future of this region. The dairy cow, limited numbers of hogs, feeders, and plenty of sheep and poultry are destined to raise Prosperity's banner in the Ozarks. Here full bins, cribs, and mows depend on tickling Mother Earth with the best aids of scientific skill. The soil is strong, but the farmer must know the secrets of making the soil respond or his labor is largely in vain. There is plenty of loafing fertility in the soil waiting to be forced into activity. This thin land requires stable manure, cover crops, and deep plowing. Then corn yields can be made to jump from 30 to 60 bushels per acre and upward. Most of the old-timers are satisfied with little. Unfortunately much of this region is just beginning to creep so far as putting into use the best farming practices is concerned. But the right combination of dairying, fruit, and poultry has already built up some splendid Ozark communities of American citizens.

An example of community business sagacity was exhibited in a town of two thousand inhabitants (Mountain Grove) at the time of my visit. A road convention was scheduled for the next week, and strife was expected in the effort to secure a good chance at certain road improvements. To make sure of an effective fighting force being present, the Mountain Grove community hired all the rooms of an entire floor of a prominent hotel at their state convention city. Their delegation was thus made sure of housing accommodations close to the base of operations. Such team work is bound to put any community on the map.

Ozarks Have "Velvet" Ahead

The present sharp advance in price of certain metals is quite certain to boost the development of the mineral resources of the Ozarks. Mining and farming will yet go hand in hand in the Ozarks. During one stage of my journey I had the good fortune to spend an hour visiting with a circuit-riding preacher who covers some outlying sections of country. This practical parson is sure a valuable man for any locality in need of building up industrially as well as spiritually. He related the particulars of a new mining development that is working out in his own field of labor. Briefly told, a friend of this parson made a study of mining engineering and became convinced that his own native region promised a profitable mining future. He got hold of some land that seemed to him to have promise, and gradually developed a zinc and lead prospect far enough to show

its value. He was then easily able to sell his mine to good advantage. At once he began to develop another which at the time of my visit he had just sold for \$10,000 to a mining company. This young mining engineer will quite likely be the means of adding extensive mining industries to that particular Ozark region, which will mean new markets for farm produce where most needed.

This Ozark country is only at the threshold of its mining activities. American mills and plants are devouring our crude mineral supplies in ever-increasing volume. The father of my seat-mate out of Springfield, Missouri, had already shipped several carloads of unusually rich iron ore to St. Louis, a distance of over 300 miles, and realized a small profit. The shipments were made primarily to demonstrate the richness of the iron ores in his locality. It is this promise of development of valuable mining and manufacturing industries right in the heart of the Ozarks and other of the semi-pioneer sections of our country which indicates a better future for these less-favored farming regions. At present the farmers of this newer country cannot compete in selling in markets far removed unless they can develop some successfully organized form of disposing of their products.

Land-Hungry Must Weigh Chances

Unquestionably this Ozark country will become one of the various outlets for the land-hungry from the higher priced farm-land zones. Plenty of farms are to be found ranging all the way from tracts of a dozen or two acres up to ranches of quarter, half, and entire sections suitable for stock farms, dairying, and mixed farming. All grades of improvements are to be found on these farms, and prices range from \$10 to \$60 per acre and upward. Some of the best of these forty-, fifty-, and sixty-dollar an acre farms offer attractive future farm homes to families who know how, or who are willing to learn, to operate successfully land of this character. The climate is assuredly an asset to be reckoned. Situated far enough south to escape the worst rigors of winter, and with altitudes sufficient to temper summer heat, there is a disposition among the more ambitious residents of towns and farms alike to swear by their country as a present safe proposition and a sure future winner.

But I want to make sure that no one mistakes my opinion about this Ozark country. My observation and conversation both convince me that the farmer accustomed to costly corn-belt or grain-farming land should go very slow in buying land of a distinctly different type from that which he has been used to farm. I had the satisfaction of visiting with a Kansas farmer who moved to the Ozarks six years ago. One of the principal reasons for a change being made in his case was the more equable climate. They greatly appreciated the climate from the start. But the thin soil, rougher land, and greater difficulty in cultivation called for such differences in farming that Mr. R. and wife were at the point of selling out at a sacrifice during the first three or four years. Now they have changed to mixed farming with a good farm flock of 175 laying hens, some cattle, and a few hogs, and the tide has turned. His parting words were: "I am now coming near the place where I can become a booster for the Ozark country. But whoever comes here to farm should bring his ambition with him, and an open mind."

I believe this transplanted Kansan has put this matter of locating in this far-famed Ozark country exactly on the level. I am sure it can be classed as "God's Country," and as time passes, this region will be made to "bud and blossom as the rose." But more science and more pluck must be brought into the solution of the problems confronting the Ozark pioneer than was required when the richer, deeper soils of the prairie country were being settled.

The Editor

Grape-Nuts

embodies the full, rich nutriment of whole wheat combined with malted barley. This combination gives it a distinctive, delicious flavor unknown to foods made from wheat alone.

Only selected grain is used in making Grape-Nuts and through skillful processing it comes from the package fresh, crisp, untouched by hand, and ready to eat.

Through long baking, the energy producing starches of the grain are made wonderfully easy of digestion.

A daily ration of this splendid food yields a marvelous return of health and comfort.

"There's a Reason"

Sold by Grocers everywhere

AUTO TOP ROOF PAPER POSTER \$5.95 UP

Easy to apply, you save two-thirds price of new top; auto wheels demountable rims \$16; buggy and wagon wheels \$7 up; axles \$2. Our catalog gives wholesale prices and freight prepaid offer on everything in buggy and auto parts.

Split Hickory Wheel & Top Co., 1107 C St., Cincinnati, O.

SPEAKING OF YOUR HORSE—

Have any trouble with his shoes? Nails hold properly? Do they stand the tests of speed, rough roads, hard work?

Capewell nails have solved the horse nail problem for thousands—they'll do it for you. Just have your blacksmith use that brand. Best nail in the world at a fair price—not cheapest regardless of quality.

THIS CHECKED HEAD OUR TRADE MARK

ABSORBINE STOPS LAMENESS

from a Bone Spavin, Ring Bone, Splint, Curb, Side Bone, or similar trouble and gets horse going sound. Does not blister or remove the hair and horse can be worked. Page 17 in pamphlet with each bottle tells how. \$2.00 a bottle delivered.

Horse Book 9 K free
W. F. YOUNG, P. O. F., 284 Temple St., Springfield, Mass.

Don't Throw Away Your Worn Tires

European Motorists are getting 10,000 to 15,000 miles from a set of tires by "re-treading" them with Steel-Stubbed Treads—you can do the same—Durable Treads are guaranteed 5,000 miles without puncture.

We deliver free express and allow you to judge. Applied in your own garage in thirty minutes. **Special discount** to motorists in new territory on first shipment direct from factory. Write for sample-size tire size.

The Colorado Tire & Leather Co.
783 Tread Bldg., Denver, Colo.
689 Transportation Bldg., Chicago
720-897 Woolworth Bldg., New York

They are worth money

FORD AUTO GIVEN

You can be one of those selected to represent us in your neighborhood during the next few months and earn a FORD TOURING CAR, free of charge by just employing your spare time among your friends and neighbors. Send application today. Send no money. Just postcard. Address **AMERICAN DISTRIBUTING ASS'N., 522 South 16th St., Omaha, Neb.**

GET MY NEW BUGGY BOOK FREE

The greatest vehicle catalog ever printed—a postal brings it—postpaid.

SPLIT HICKORY

Famous for beauty, comfort and quality. Nearly a quarter of a million now in use. My new catalog tells how I have split the price—now only \$39.25 and up. 150 styles to choose from. Write today. N.C. Phelps, Pres. **THE SUND CARRIAGE MFG. CO., Station 29, Columbus, Ohio.**

1 Give 30 Days Free Road Test—Two Years Guarantee

FARM and FIRESIDE

Published Twice a Month by THE CROWELL PUBLISHING COMPANY, Springfield, Ohio

Copyright 1916 by The Crowell Publishing Company

Vol. 39

Springfield, Ohio, Saturday, July 15, 1916

No. 21

The Mortgage Lifters

What the Hog Family Will Do for You if You Give Them a Chance

By HARRY M. ZIEGLER

WHEN I was nine years old I paid \$4 of my \$7 capital for two Duroc Jersey gilts, eight weeks old. I was going to make my fortune with hogs. I didn't make a fortune, but I did demonstrate what was far more important: that anyone with a love for live stock and a few dollars' capital can make money with hogs.

If a person has a lot of good land and plenty of capital, making money in any line of the farming business is simplified. Making a good living, putting away some money for a rainy day, paying for a farm, new machinery, household conveniences, a barn, a silo, or possibly an automobile—these are the things that profoundly interest most of us. Hogs will produce the money to do these things.

Two neighbor boys went with me to the farm where I bought the pigs. It took our combined efforts to put the gilts in a large burlap sack, place them in a little wagon, and pull and push the wagon home.

My father was raising Poland Chinas on our home farm. I knew they were not prolific, and that they didn't make sufficiently good gains in the fattening pens. This prejudiced me against Polands, and caused me to go to a neighbor and buy the two Duroc Jersey gilts.

When I grew older I learned that it was the specimens of the breed Father had, and not the breed itself, that was at fault. Pure-bred boars soon corrected this.

While corn at that time was worth 24 cents a bushel, Father said he would feed my two gilts, until they were ready for market, for the rest of my capital—the \$3.

Many a morning that summer, after I had done my part of the chores, I pulled weeds to feed the pigs. I moved their pen around in the orchard so that they had plenty of clover to eat, in addition to the weeds I fed them. This pen was 16 feet square. It was made of fence boards. Across one corner was a shelter. I didn't want to let my pigs run in the pasture with Father's. I was afraid cholera might break out in the herd any time, as it was all around us, so I kept my stock isolated.

I fed them the scraps from the kitchen, and all the corn they would clean up nicely. I gave them ashes, charcoal, and salt, and kept a plentiful supply of water near all the time. The spare time I had that summer I sat perched on the fence, watching the pigs eat and grow.

We had an old worn-out galvanized iron bathtub that Father said I might use to wash the pigs in, so every few days that summer the pigs were given a good scrub with soap and water. Sometimes it took the help of several of the boys in the neighborhood to accomplish the scrubbing, but it was done.

The following June, when my porkers were more than a year old, the hired man loaded them into a wagon one morning when he was going to town for a load of coal for the kitchen. I went along. We drove down to the stockyards in the little town. I had the man stop in front of the office of one of the three live-stock buyers. I knew this hog buyer very well; his son and I were chums.

The hogs were of the same size, of excellent quality, and were well finished. The stock buyer climbed up on the wagon, looked at



It is quite evident that the sow that farrows ten to fourteen pigs is more profitable than the one that farrows six to eight pigs

the hogs, and said he guessed they weren't fat enough to be worth anything on the South Omaha market. My hopes fell. We started to drive on, when the stock buyer said he was only fooling. He agreed to pay me the top price, \$3.25 a hundred. We drove onto the scales, down in the yards, unloaded the hogs, and weighed back the wagon in record time. The two hogs weighed 660 pounds. I could hardly wait to figure up what I was going to get for them. The hog buyer wrote me a check for \$21.45.

Several days later a carpenter who was building a cattle shed for Father said he would give me a Berkshire sow and seven week-old pigs if I would do some work for him. He said that he had a seven-acre tract that adjoined town which was covered with a three-foot growth of sunflowers. He said his hogs had rooted up the ground so badly the surface of the field was too rough to use a mower.

The next morning I jumped on my pony and rode into town to see how much of a job it would be. I looked at the field, and decided that I could cut it with a brush scythe in three weeks. At this rate I

put the six pigs in a pen by themselves, and gave them all of the corn they would eat. One of them had been stepped on and killed by our Hereford herd bull early in the summer. I built a feeding floor for them 8x10 feet.

In February, when they were nine months old and weighed 260 pounds apiece, I sold them. I got \$3.65 a hundred for them. Here is the transaction itemized:

RECEIPTS	
Sow, 350 pounds @ \$3.50 cwt.....	\$12.25
Six pigs, 1,560 pounds @ \$3.65 cwt.....	56.94
	\$69.19
EXPENDITURES	
Cost of sow and pigs.....	\$15.00
Skimmed milk	8.00
Oil meal	2.00
Corn, 116 bushels @ 25c.....	29.00
	\$54.00
Profit	\$15.19

While the price of corn then was about a third of what it is worth now, the present price of hogs is nearly three times as much as I received, so the present proportions of hog and grain prices are the same.

In March that year I bought a Chester White sow and a Poland China sow at a sale. I gave \$12.65 for the Chester White, and \$11.25 for the Poland. Father joked with me a lot because I bought a Poland China hog. Each sow farrowed eight pigs and lost one. These hogs ran in the orchard and were fed skimmed milk and corn, and handled on the same plan as the hogs the year previous. I sold the sows in November and the pigs in January. The total cost of the hogs and their feed was \$115.25. I received \$165.90, leaving a profit of \$50.65.

The next February we sold our farm and all of our live stock except our pure-bred Hereford cattle, and moved to



The cost of producing a pound of pork has been decreased greatly by grazing hogs on succulent grasses. Alfalfa, clover, and rape are popular as pasturage for hogs

[CONTINUED ON PAGE 171]

For Food and Raiment

Competitor Clothed in Wool Walks with the Steer and Hog

By W. T. McCOY

THE sheep industry now promises good things ahead for the work of skillful shepherds. This opinion is not based on merely my own personal ideas. Figures speak with more force than words. There are now only about four million more sheep in this country than there were in 1879, and we now have eight million less sheep than were in this country in 1884, when our high-water mark in sheep reached fifty million head.

If questioned about the cause of present high prices of wool or mutton, the general offhand verdict will be found to be, "War prices now prevail." But war influence has but a small part in present high prices for sheep products. Shortage of sheep is the true answer.

The price of mutton has reached the highest point ever known, and the price of wool is rapidly approaching that point.

In 1913 there were 296,000,000 pounds of wool marketed at an average price of 15 cents per pound. In 1914 there were 290,000,000 pounds at 18 cents, and in 1915, 288,000,000 pounds averaging 23 cents. These figures tell the story and show why flocks must be increased.

The methods used in managing our flock have yielded very satisfactory results, and yet we realize that greater care will produce a correspondingly greater profit. About thirty years ago we began to breed pure-bred sheep, aiming to supply the demand for pure-bred rams to head mutton flocks. We have usually wintered about 60 head, 30 to 40 of them being breeding ewes, about 15 of them rams, and the remainder ewe lambs kept to replace the older ewes that had grown too old to be profitable.

Keep Ewes Fat in Fall

WE ALWAYS try to have breeding ewes fat in the fall before breeding them, and to accomplish this they are given extra good pasture, changed frequently, and sometimes were given a little oats once each day. We begin to breed our ewes about October 10th, the object being to have the lambs arrive during the month of March.

The ewes are allowed to run the fields without grain until snow covers the ground. But they are never shut in.

About January 1st they are given a small amount of silage each day, not over two pounds each, and no grain if there is clover hay. If there is no clover, some oats and bran are given very profitably. Care is necessary in feeding silage to breeding ewes just prior to lambing, as it is apt to induce a too liberal flow of milk when the young lamb is unable to consume it all, and thus cause udder trouble.

As soon as the first lambs arrive we put the ewes in small pens where they can be quiet and where the lambs cannot stray away, and we make sure the lambs suck freely and the udders are in good condition. At this time we begin to shut the ewes in every night, as otherwise they would be apt to wander off to the field to drop their lambs.

We do not practice visiting the barn every night, even during lambing season, unless in special cases. We always attend to everything about nine o'clock, then allow the stock to be quiet until five next morning.

The lambs are docked when from two to four weeks old by tying a string tightly around the tail close up to the body, and while an attendant holds the lamb the tail is cut off just below the string with a very sharp knife. The strings can be removed in from four to eight hours. What little castration we do is done soon after this time. Lambs intended for market should always be castrated, as they will fatten more rapidly and will not be annoying to the rest of the flock. We also provide a small creep in a convenient corner of the barn where the lambs can eat oats and oil cake at the regular feeding time.

Shearing is always done as early in April as the weather will permit. Early shearing has many advantages: work is not so pressing, the ewes are not feverish through hot days and nights with a heavy fleece, and without the fleeces the ticks, if there are any, will leave the ewes and go to the lambs, which can be dipped at once, and being shorn, ewes will not stay out in storms until

EW

they and the lambs are thoroughly wet and chilled.

In the early part of May our ewes are turned on good pasture, after which they receive no grain. But we try to see them every day, and always watch for scalded feet, maggots, and, most important, stomach worms. Any of these troubles are small in comparison with the latter. So far the best remedy for stomach worms we have found is two ounces of blue vitriol boiled in a gallon of water. Give each sheep two ounces of this mixture after they have been starved for twelve to sixteen hours.

Before going on grass, all sheep and lambs are dipped, and again in the fall before cold weather begins. We salt the sheep only once or twice each week during the summer, but keep salt before them at all times during the winter.

As soon as pasture begins to fail in July, we wean all the lambs and put them on fresh pasture, such as second crop clover or a piece of rape, keeping the ewes on poor pasture and milking them every few



Rotation of pastures enhances success with sheep just as rotation of crops adds to the returns in crop production

days for about ten days until they are all dry, then they are given good pasture and sometimes a little grain, to prepare them for another breeding season.

We generally have the cornfields sown to rape at the last cultivation, and turn the young lambs in to eat the rape and weeds and grass around the fences until they begin to injure the corn.

Our aim is to keep our flock healthy and doing well at all seasons of the year. We find that fat ewes always produce our best lambs, and our fat rams, when given proper exercise, prove to be the best sires.

Both the ewe and ram lambs are given the best possible care, as the ewe lambs are later to become our stock in trade to make sure of profitable continuance of our sheep business, and the ram lambs are to be prepared to sell as service rams. Too many sheep owners overwork their yearling rams, and thus ruin their future usefulness. By using sufficient care in this respect the first year of service, we are able to get good results from our rams for several years.

At lambing time, when the busiest time of the

year arrives, there can be no shirking. Some ewes will refuse to own one of a pair of twins, and have to be watched carefully. Some have but little milk, and some have too much. All these conditions must be dealt with, and good judgment, patience, and firmness are all essentials in getting the newcomers on a good developing basis. It is no time to have inexperienced hands about the lambing pens in zero weather.

Every shepherd must work out a system that is best suited to his needs. At the present prices of wool and mutton we consider our sheep the most profitable branch of our pure-bred live-stock business, and are confident we could make a grade flock equally as profitable.

Starting a Flock

Capital and Equipment is Small

By J. B. HENDERSON

THERE has been no time within the last twenty-five years when the sheep business has been in such good condition as the present, and the prospects for the future look bright. The Eastern farmer, as a rule, keeps his sheep in a more or less careless way. It is profitable in spite of his carelessness. There was a time when sheep were kept primarily for wool, but now, because of the increase in consumption of mutton and the prices realized, the mutton consideration stands first.

I find that sheep properly handled are the best paying animals on my farm, considering the initial investment and equipment. Sheep are economical producers, requiring less feed for producing a pound of gain than the average for my other farm stock. Land on which sheep are kept is never impoverished, and weeds will disappear and grass come in. In driving through a country I can pick out the farms that keep sheep.

I would not advise the beginner to start with a large flock. By beginning small the number can be increased as knowledge and experience grow. When selecting a breed take the one that most appeals to you, for you are likely to be more successful with that breed.

Ram Half the Flock

I FIND that high-grade animals give greater returns than scrubs, and the ram, being half of the flock or more, should be selected with much care, making sure of great vigor in all breeding animals. If the lambs are to be dropped before grass comes, clover or alfalfa hay should be provided for them, as timothy hay is dangerous to young lambs if they start to eat it. In case some kind of clover hay cannot be secured, oats and peas grown for hay and cut before they are ripe make a very good substitute.

My young lambs learn to eat grain and hay when only two weeks old, and they profit by having this solid feed. I partition off part of the sheep barn where the lambs can slip through and the ewes cannot go, and feed the lambs grain in this creep. To these young lambs I feed wheat bran, shelled corn, and oil meal. In starting them we usually prefer to use one part of wheat bran to ten of oil meal, by measure. Young lambs will never eat too much if started when they should be. When they are started nicely we then put in some shelled corn, say one-third corn by weight. If they are to be kept for breeding purposes, corn should not be used to any great amount, but feed high in bone- and muscle-making material. Oats are also a good feed for lambs intended for breeding purposes.

It is hard to say just what amounts of feed should be fed at all times. The kind and quality of forage that is fed makes a lot of difference.

I prefer the coarse ground grain to the fine ground, and find the time to make the cheapest growth in the lambs is when they are young. They can then be sent to market sooner and escape the ills that await them in later life.

I think that the arguments are all in favor of getting the lambs to market as early as possible. To do this successfully, plans must be laid in advance. Poor, tick-bitten ewes cannot be expected to get with lamb in time, nor to grow their lambs to the early marketing stage when weak and unthrifty. All the successful shepherds I have known made sure of high vigor and good flesh of all breeding stock in the fall. Then proper wintering will turn the trick.



These lambs are well-bred and well-born. Their dams and sire were fed for vigor. Quality and finish is writ large all over them. Whether they go to the shambles or breeding farm, a fancy price is assured

Farm Dipping Vats

A Bath in Disinfectant Makes Live Stock Healthier

By B. D. STOCKWELL

THIS account of dipping and the construction of dipping vats is prompted by the remark of a Southern stockman. "My policy in running this farm," he stated, "is to take care of everything I have before I add anything new." He had been talking about his cattle, and had just showed me his dipping vat, a substantial one made of concrete, but it was neither large nor did it have an elaborate system of corrals and draining pens.

This man has the knack of getting cash returns from all of his farm operations. His cattle and sheep are his main dependence. He has a few side lines—only a few—but they all pay well. Everything was in good order and appeared to be running along smoothly. "There are farmers to whom the other side of the fence always looks better than the side they are on," he remarked, "and they can think of new things to do faster than they can ever hope to do them. Such men acquire more land than they can handle to best advantage; they raise more stock than they can feed or even keep fenced, and before they have caught up with themselves they take on still bigger things. Consequently there is an enormous waste because of neglect of what they have."

His dipping vat is just one example of thoroughness as applied to stock-raising. A steer or a hog or a sheep infested with lice or mites will not make the best gains. The cost of dipping ranges from three to about twelve cents per head, depending on the nature of the dip used and the size of the animal. While even this small figure will count up to quite a sum when many animals are to be dipped, the amount will nearly always be smaller than the losses, which troop along one after another if nothing is done to keep the stock healthy. Sickness, poor gains, medicine, veterinary fees, the occasional loss of an animal, and finally a cut in price because of poor market quality—these are some of the things which more than offset the cost of dipping.

In the South, where the winters are mild, animal parasites are a greater problem than in the Northern States, where the cold automatically keeps them partly under control. In the South Atlantic and Gulf States, the value of dipping has been demonstrated by the Government's work in eradicating the cattle tick, and in the West the control of sheep scab by dipping is now a common practice.

Pests That You Can Kill

DIPPING as a general farm practice is still something of a novelty, probably from the mistaken idea that it applies only to big ranches, stockyards, and other large-scale operations. On the contrary, any water-tight barrel or even a canvas dipping bag may be used for treating lambs, pigs, and other small animals. And anyone who has ever given a dog a bath in a flea disinfectant already knows the principle involved. It is simply to kill insect pests by poisoning them with a liquid fatal to them but harmless to farm live stock.

Here are a few animal parasites than can be best controlled by dipping:

On hogs: Hog louse, flea, red mange, and sarcoptic mange.

On sheep: Sheep tick, sheep-scab mite, mange.

On cattle: Texas fever tick, mange, scab, various kinds of lice and mites.

On horses: Lice and mites.

Formerly dipping vats made of wood or galvanized iron were largely used, and where a portable vat is needed, galvanized iron is still the first choice. But concrete is much the best material for making a vat for farm use. It is everlasting, relatively easy to construct, and seldom needs repairs. The cost of a concrete dipping vat that can be used for all farm animals will be about \$50 for materials, including fencing at the entrance and outlet. The vat illustrated requires approximately 45 sacks of Portland cement, 5 cubic yards of sand, and 15 cubic yards of gravel.

For dipping just hogs the vat may be made as small as 10 feet long, 4 feet deep, 20 inches wide at the top and 12 inches at the bottom. These are all inside measurements. Such a vat will require about a fourth as much material as the large vat. As a means of preventing the waste of dip, a dripping pen having a concrete floor should be located at the exit. The dimensions of such a pen should be about 5x5 feet for hogs and 10x12 feet for cattle. In

selecting the location of a dipping vat, the most important consideration is to have it near the water supply and, if possible, on high enough ground so it may be drained by gravity. As the vat will need cleaning from time to time, such a drain will prevent the necessity and work of pumping the contents out.

The dip used depends on the nature of the parasite to be killed. In fact, as in spraying trees for insect pests, the best results can be obtained only when the solution is of the proper strength and is applied at the proper time. For some parasites, such as the cattle tick, the first dipping will kill the tick but not the eggs. Accordingly, the animals must be dipped again in two or three weeks; the interval depends on the time of year, as they develop more rapidly in hot weather.

Dipping during the winter is not to be encouraged as a general practice, but it can be done if care is exercised. With sheep, for instance, which dry slowly, they should be watered and fed three to six hours before dipping, and it is best to have the operation over by noon. A sheep with a full stomach and with all afternoon to dry is not likely to be injured. But warm-weather dipping is much the safer and more satisfactory.

Soft water is best for mixing certain solutions, although it is not essential. But a water containing very much mineral matter is undesirable since lime, especially, unites chemically with some of the dips, and weakens the strength.

The Farm Pond

Nebraskan Grows Fish for His Table

By K. P. FREDERICK

SENATOR THOMAS LAHNERS of Thayer County, Nebraska, and member of the last State Senate in his home State, is a farmer with a big idea. Not only is his idea big, but he has done so much personal and effective missionary work on it that he has converted all the farmers of his home

county and most of those in several adjacent counties.

Senator Lahners' hobby, and his big idea also, is fish ponds. To the Eastern, Western, or Northern farmer with his many streams and lakes this sounds a trifle odd. But in Nebraska and neighboring States, where streams are few and far between and ponds are fewer still, the idea is being taken in all seriousness.

Mr. Lahners has a farm of 160 acres which he farms himself. Several other farms which he once owned he has presented to his sons. But each has its ponds.

When Mr. Lahners began to farm his place he had no water on it, save that brought to the surface by a windmill and deep well. But a couple of likely-looking draws ran through the farm.

The senator and his sons, then mere boys, built a

dam across one of these. When the spring snows melted and the spring rains came the senator had his first pond. This is the way he tells it:

"Well, sir, you never saw anyone as tickled as I was over that first pond. I went to the fish hatcheries and got a lot of catfish and bullheads, little fellows, and stocked my pond. In a few years I began taking out grown fish whenever I wanted them. From that time on fresh fish furnished the meat for our table about twice a week."

No Seiners

"THIS may seem insignificant to you on first thought, but it was not to us. For we ate these fish for many years and still are eating them, and it has cut down our meat bill wonderfully. This again may seem queer, but even though we always raised our own stock, the fish cut down our meat consumption and left us more for the market."

"But this fish pond was not all. A few years after this one had proved such a success the boys and I dammed up the other draw and stocked this pond with carp. I now

have carp in there weighing 20 to 30 pounds. The carp is a good eating fish if one cleans it and salts it down long enough to take the wild flavor out of it.

"I sell some fish now, and give some away. How do I keep others from seining out my ponds? That is easy. I simply plant what I call mines. We rolled up a number of big bundles of barbed wire and scattered them about in the pond. We know where each bundle of barbed wire is located, but the fish thieves do not."

"Several seining parties paid a visit to my pond. Each got his net hopelessly entangled in these barbed-wire mines and had to leave them. So I am not bothered with seiners now."

"If persons want to fish with a pole and line, and they come and ask me for permission, I show them the places where they can fish and keep their lines free from the wire."

"The farmer neighbors to me like the idea, and many now have one or more ponds. All one needs is a slight ravine or draw. A dam and the winter snows and spring rains will do the rest."

"Then my ponds attract all sorts of birds to my place. I have plenty of doves the year round, and many a fine mess they make. Then I have ducks fall and spring, although it is but a small patch of water."

"And there is in addition always something green growing about the edge of my pond, no matter how dry a summer it may be."

Senator Lahners also puts up enough ice for his own and his sons' use, but does not attempt to put up any for sale, as distances are fairly great in that part of Nebraska, and those farmers who do not have similar ponds from which to put up ice employ the old-fashioned cave as an adjunct to the well house for cream and butter cooling. He puts up between 3,000 and 4,000 pounds a winter and could put up much more.

Senator Lahners, it might be added, is one of the most successful farmers in his county. An admiring host of friends elected him to the State Senate last winter as a slight token of their esteem.



Looking down on a farm-size concrete dipping vat. The gate slides up to admit the stock



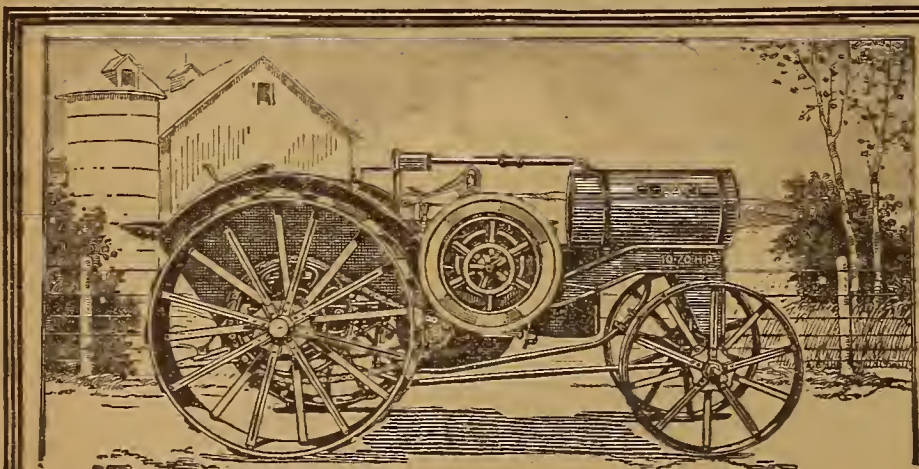
This shaded concrete wallow is pretty near hog heaven in midsummer. The water contains a disinfectant to kill parasites. The man who built this believed that hog comfort meant more pork, and found it so

Most Miles Per Dollar with the **RED SIDE WALL AND BLACK TREAD**

THE TRADE MARK OF

Firestone

NON SKID
TIRES



Titan 10-20 \$900 Cash
f. o. b. Chicago

THERE is hardly a farm with a hundred acres or more of tillable land but what has belt work enough to keep a 20-H. P. engine busy when not doing field work. This belt work alone will in most cases pay the entire yearly fuel bill of a **Titan 10-20** tractor. Add to this the deep plowing, disking, harrowing, seeding, fallowing, harvesting and hauling the Titan will do during the year, at less than horse cost, and you see at once what a gilt edged investment this tractor is.

Power, strength and economy as combined in the **Titan 10-20**, mean everyday usefulness. It has power and strength to take care of the everyday work of the farm. It is small enough to run light machines with economy. It works successfully on kerosene. It reduces the number of work horses needed. It saves so much in so many different ways, and does so much that it cannot help but pay for itself long before it is worn out.

Write for full information about this **Titan 10-20**—the tractor that pays for itself, that furnishes power at kerosene cost (less than half the price of gasoline), and that is just the right size, weight, and style for farms of 100 acres or more.

International Harvester Company of America
(Incorporated)

CHICAGO

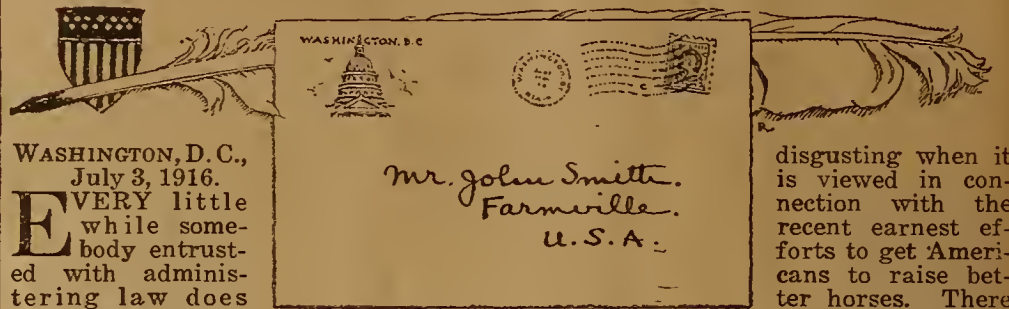
USA

Champion Deering McCormick Milwaukee Osborne Plano

Land in Alaska

Government Pamphlet Tells Best Locations

By JUDSON C. WELLIVER



WASHINGTON, D. C.,
July 3, 1916.

EVERY little while somebody entrusted with administering law does something to make the average, ordinary person wonder whether government is worth all its costs. There certainly is a fatality about the capacity of government management to make a spectacle of itself.

The other day a man in London shipped five fine stallions to this country to be sold for breeding. They were all famous animals, and it was assumed that they would be worth at least \$30,000. One of them was a full brother to Orby, the horse that Richard Croker entered for the great English Derby, and with which he won that race.

These were all of the particular sort of animals that this country needs, and for the importation of which the Government has long been extending special inducements. Among the rest, a law was passed providing that the tariff duty on such animals, when imported by American citizens for breeding purposes, should be remitted.

So when these five especially useful animals came to New York they were hailed as a real acquisition. They represented a further evidence that now is the time for America to make itself headquarters of the thoroughbred horse industry. The supply of Belgian and Norman horses has been cut off by the war, and importers and breeders have found it increasingly difficult to get the best stock. Europe is killing its horses almost regardless of their intrinsic value, in war. The cases in which it is possible to bring the best types of breeders here are rare indeed.

But when the New York port authorities looked over those five horses they shook their heads. The law provided that the duty should be remitted when the animals were imported by American citizens. In this case the horses were sent here on consignment, by their English owner, to an agent, for sale. They were not American owned when they appeared at the custom house; they were still the property of the British owner, and would be until they should get through the customs and be sold to Americans.

The collector of customs referred the question to his law officers, and they said with prodigious importance that the duty must be paid. If the horses had been sold before coming here they would have been duty-free, but their ownership being still alien, they must pay.

Proposal by the consignee that he would give a bond to sell the horses to American citizens was rejected. That would be too sensible and commonsense an arrangement to be considered. There was no way around the letter of the law. The duty must be paid before the horses could be released.

The agent to whom the horses were consigned for sale got disgusted—as, indeed, did about everybody else who got wind of the transaction—and declared he wouldn't pay the duty, which would be about \$3,000. Then he was told that he could ship the horses back to England, if he liked. He wouldn't do that either. There was nothing left but for the Government to take possession of the horses and sell them for the duty.

Finally Sold at Auction

Meanwhile several weeks had passed, and the horses were eating their heads off in an expensive establishment, and not getting the care they should have had. The bill for board and duty and interest and costs was piling up at a terrific rate.

So the customs officers took the horses out to the auction block and they were sold. The customs, expenses, and board bill will be deducted from the inadequate price thus received, and the balance turned over to the agent for remittance to the English owner.

Can anybody compute just how long it will be before that man will ship any more horses here to be sold for breeding purposes? Or how much faith he will have in laws intended to "encourage" the introduction of the best breeding animals here?

A ruling of this kind is particularly

disgusting when it is viewed in connection with the recent earnest efforts to get Americans to raise better horses. There is not a sufficient

supply of animals fit for military purposes, and so the Government some years ago imported stallions and distributed them where their services were offered to farmers on highly favorable terms, in order to get the right type of horses raised. The old Morgan breed was introduced in Vermont through government importation of stallions.

Having relieved my mind of that diatribe against some of the inanities of government methods, let me turn to something the Government has done lately that seems deserving of an appreciation.

More years ago than it is pleasant to admit, I was a boy on a prairie farm in northwestern Iowa, and the grasshoppers ate us all out of house and home, season after season. Some folks got disgusted, packed their schooners, and started "back east" to "York State," Michigan, Indiana, or wherever looked like home to them.

Tells Disadvantages Too

We know all about the grasshoppers now, or enough to be very sure that they will not do us any great damage. If we would have known it then, it would have saved a lot of people from ruin.

There aren't any bounding prairies left to be homesteaded; but there are still some pretty usable government lands, if they are handled in the right way, and the Government is making all possible effort to teach people to do that. The greatest piece of public domain still left to the nation is in Alaska, and there the modern methods of development are being tried. The lands have been surveyed and studied; the climate has been mapped and charted and classified; the soil is understood; experiments have been conducted for a long period of years to determine what crops can best be grown.

There is a vast agricultural area in Alaska which one day will produce a great supply of grains, vegetables, and live stock. Alaska has richer soil, better climate, a thousand times more variety of resources, than Iceland; yet if the southern half of Alaska could be given a population as dense as that of Iceland, it would number more people than most States of the Union!

The Department of Agriculture has just published a booklet of "Information for Prospective Settlers in Alaska" which every landless man ought to have. It will give any intelligent reader a pretty accurate idea in concise form of where to go and where not to go if he wants to farm in Alaska; and it is time for people to understand that Alaska is going to be a great country.

To open this great country for settlement the Government is building a system of railroads of its own. For the present, only about 1,000 miles of these lines are to be built, but it is fully realized that this is but a beginning of the system. The railroad scheme of the new country is likely to be the most efficient and economical in the world. In Europe and Asia, railroads have been built primarily to meet military requirements; in this country they were originally rather speculative. Alaska will have its railroads laid down on scientifically and economically correct lines.

It would be impossible here to give a satisfactory synopsis of the pamphlet on Alaska. But this much can be said: It gives a fair and straightforward statement of the advantages and disadvantages. It is not an overstatement.

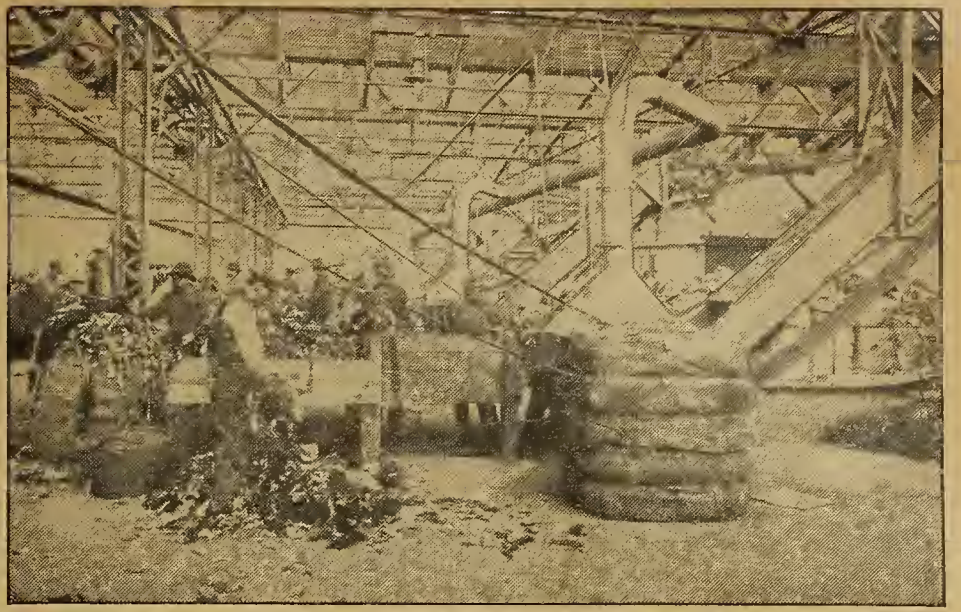
It describes climate and soil, and tells precisely why to avoid certain regions. It gives a good idea what crops can be grown in each area, and why. It tells in simple words the geological reasons for Alaska's disadvantages, and it explains the land laws, indicating exactly how one may get an Alaska farm, and in a general way at what expense.

After all, there is only one way to get a proper understanding of what this valuable little paper will tell you. Write to the Department of Agriculture for the pamphlet, and it will be sent.

E.W.



Old rags are the basis of roofing felt. There is a well-established rag market with definite grades and standards of quality



Here the rags are being shredded for felt-making. The best roofing felt has long soft fibers that will absorb large quantities of asphalt compound

FELT and asphalt are the foundation materials used in the manufacture of prepared roofing. Roofing felt is made from rags, old carpets, the waste from textile mills—in fact, from any sort of material having a suitable fiber.

After the rags have been sorted, to remove suspenders, paper, tin cans, etc., they are shredded into long fibers, which are then carried to beaters. Here water is added and the wet shredded rags are gradually beaten into a pulp, which is the basis of roofing felt.

The pulp is then conveyed to the felt machine which presses the wet fibers together in a manner similar to the manufacture of paper. The felt comes out in a continuous sheet, and is dried by a series of steam-heated rollers. The rolls of this hot dry felt are next transferred to the saturating department. The water-proofing compound varies with different kinds of roofing, but asphalt and asphalt oils are the ingredients chiefly used.

The durability of prepared roofing depends largely on its ability to resist drying out; for when it is thoroughly dry—a matter usually of years—it ceases to be water-proof. In this respect it somewhat resembles rubber, which is strongest and most durable when new and pliable.

After the saturating process the roofing is put through a coating machine where the outer surface of asphalt compound is put on. This coating gives the roofing a hard, smooth surface, and also seals up the life-giving saturating compound in the felt.

To keep the roofing from sticking when rolled, it is surfaced with powdered soapstone or mica and, after an inspection for defects, is wound into rolls. Prepared roofing is regularly made to contain about 108 square feet, which, allowing for laps, will cover 100 square feet of roof. Two-square rolls (216 square feet) are also made.

Tearing Test Deceives Many

THE rolls are then capped at one end and are sent to the shipping department, where the cement and roofing nails are put inside. Finally the other end is sealed and the wrapping is put on.

The process differs somewhat according to the kind and grade of roofing. Where extra strength is desired, the roofing is reinforced with a layer of burlap. To satisfy the demand for greater attractiveness for residence use, crushed slate or stone is some-

Prepared Roofing

How It is Made and the Best Ways to Judge Quality

By D. S. BURCH

times pressed into the wearing surface of the roofing.

As in the case of paints, prepared roofing cannot be judged by its appearance. The quality of the felt and of the saturating compound, also the amount of each, determines how long it will last; consequently the guarantee of a reliable manufacturer is extremely valuable.

Some users of prepared roofing attempt to compare different makes by the tearing test, with the belief

that the roofing which tears the hardest is the best. This test, however, works exactly the other way, since cheap roofing, containing paper, straw, and other low-grade fiber, tears harder than the best grades of roofing, which are made from soft rags and consequently hold more asphalt and keep their "life" longer.

There is also a mistaken belief that two-ply roofing is twice as heavy as one-ply. It is only about half again as heavy. Even a three-ply prepared roofing does not have twice the total weight of one-ply roofing, but it has nearly double the amount of weather-proofing ingredients. For instance, a roll of good-grade one-ply roofing contains 9 pounds of felt and 12 pounds of saturation (asphalt, etc.) as compared with 17 pounds of felt and 24 pounds of saturation for three-ply roofing. Both roofings have about 8 pounds of coating, 2 pounds of talc, and 4 pounds of cement, nails, and wrapping. By selecting a three-ply roofing you consequently get one that is superior chiefly because it contains more weather-resisting material, and will consequently give longer service. The durability of prepared roofing depends on care in laying to a much greater extent than is generally realized.

A good method of testing roofing is to take a piece about two feet square, support the corners so as to form a bowl, and then fill it with water. All good grades of roofing will stand this test.

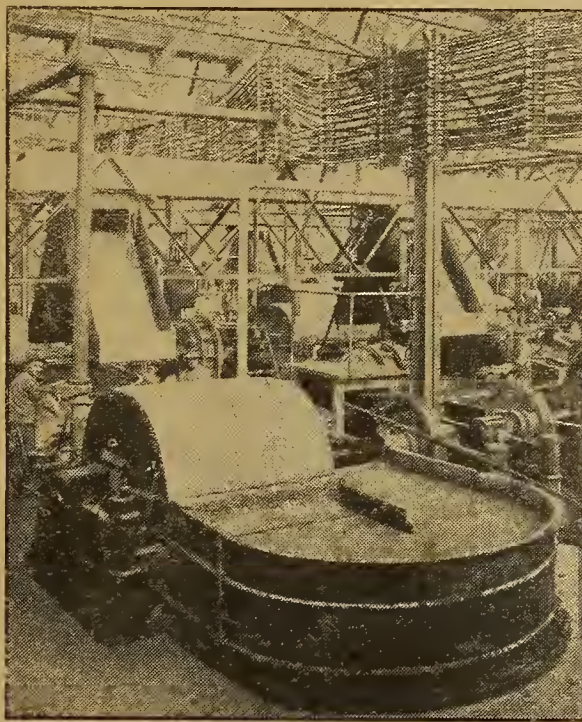
It's as Standard as Lumber

THE roofing business is now so well established that anyone can buy and use different grades as easily and with the same satisfaction that he can buy different grades of lumber.

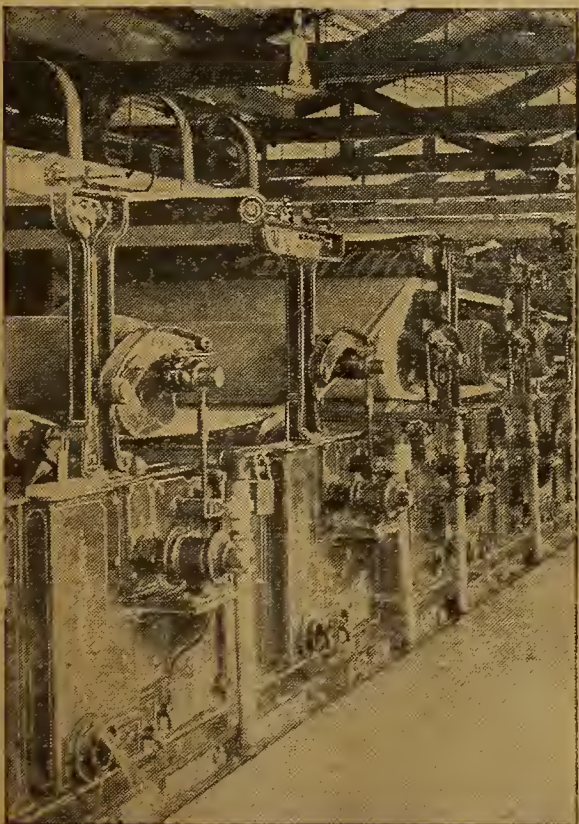
For lumber camps, contractors' shelters, and cheap farm sheds that will be used just a season, it would be poor economy to use high-grade, 15-year roofing. But most concerns make several grades of roofing, each of which bears a different form of guarantee.

Thus, when prepared roofing is made by a reliable concern, it is a commodity that you can count on for future service with reasonable certainty.

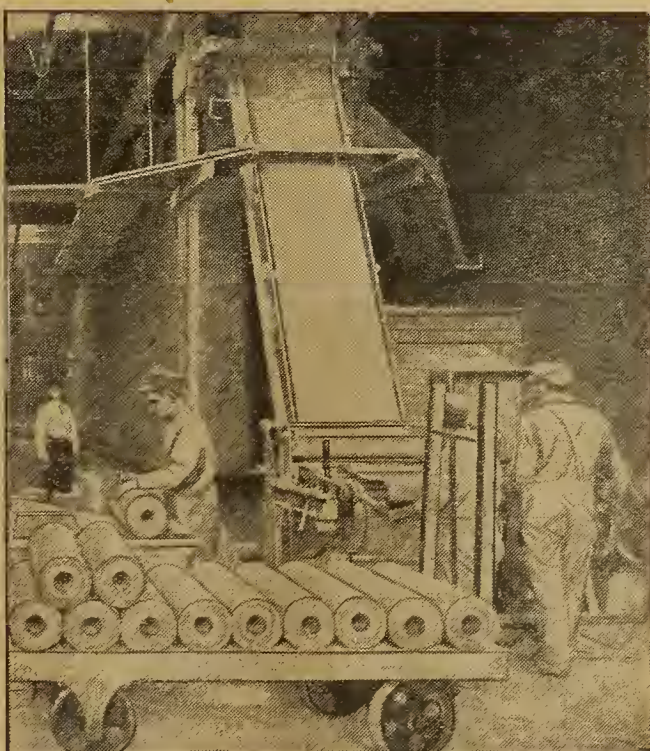
EDITORIAL NOTE: FARM AND FIRESIDE has made a careful investigation of the prepared-roofing market, and we shall be glad to suggest suitable roofings for any kind of farm buildings. This service is free to subscribers, and will be given by personal letter. Address the Roofing Editor, FARM AND FIRESIDE, Springfield, Ohio.



Water is added to the shredded rags, and beaters like this convert fibers into a pulp



Enormous felt machines then convert the syrupy pulp into dry felt



After saturation with asphalt compound, it is dusted with soapstone, to prevent sticking, and rolled



Here is shown a portion of five acres of prepared roofing over an oil reservoir

FARM and FIRESIDE

THE NATIONAL FARM PAPER

Published Twice a Month by
The Crowell Publishing Company
Springfield, Ohio

Branch Offices: 381 Fourth Avenue, New York City;
Tribune Building, Chicago.

Entered at the Post-Office at Springfield, Ohio, as Second-Class Mail Matter.

Subscription Price

One year (24 numbers), fifty cents. Three years, one dollar. Extra postage for Canada, twenty-five cents a year.

About Advertising

Farm and Fireside guarantees that its advertisers are responsible and honest people, and that its subscribers will receive fair and square treatment.

Advertising rates and regulations furnished upon request.

July 15, 1916

Dust on Sunday

THE dusty season is upon us. Every pleasant Sunday afternoon from now until late October, dozens and possibly hundreds of automobiles will drive by your place. Perhaps you will be driving yourself. You may prefer, however, to sit and rest on the porch or in the front yard. But can you do so with any comfort? Will you sit in clouds of dust, with your trees, shrubbery, and lawn white with it? There is an easy and inexpensive way to avoid it. Road oil, which can now be bought in nearly every town, costs about 10 cents per gallon in barrel lots. It is put on with an ordinary sprinkling can. Depending upon the condition of the road, a gallon will oil from two to four square yards. Figure it out for the strip in front of your house. Oiling fifty or a hundred yards may be the making of your Sunday and evening comfort.

Prices After the War

MANY farmers have been questioning the market outlook for particular crops in the next year or two. The depression in the price of wheat, together with reports of large acreages in many wheat-raising countries, has naturally caused concern about the future.

It is pretty dangerous business to give advice in such cases; if it proves right it's likely to be forgotten, and if it proves wrong it's certain not to be. But, without advising, it may be interesting to observe that the studies of wheat prices during and following the wars of the last two hundred years show that almost invariably the highest price is reached not during but, some time soon after the end of the struggle.

That was true of our revolutionary war, of the Napoleonic wars, the Crimean, the Civil War, and the Franco-German war of 1870-71. There is not much doubt that it will be true after the present war, because when war ends the measures that Governments have taken to control prices and prevent extortion will be relaxed. Speculation will get its first easy opportunity. The resumption of industry in general will inevitably cause speculation in a thousand directions, all of it pointing to higher price levels in general. That is what has always happened; conditions now suggest unusual reasons to expect it to happen again.

The Wool Outlook

COMMON sense and a little study of market conditions will convince almost anybody that sheep raisers have a fine prospect of good profits. Long before the war began, wool was showing a marvelous strength. Even the legislation removing the protective duty on it had only a very temporary effect on the price. The reason is simple. The world isn't raising wool fast enough to keep up with its demands; it has little reason to expect wool to catch up with needs.

A large share of the world just now is using up its reserves of woolen fabrics and not replacing them, on shelves, in warehouses, and in factory produc-

tion, fast enough to care for the future. "A few sheep on the side," like "the wife's chickens," can be made one of the most profitable incidents to farming if dogs don't bother them. It's the side lines that help out. Sheep can be pastured largely on land that otherwise would be unprofitable, if the farmer has any such. In rough, stony, and wooded countries, especially, are they desirable. The children can always be interested in them more easily than in most stock. An enterprising boy and half a dozen lambs will be a fine working combination that will surprise you if you never tried the sheep business.

Confidence

WHERE do you like to trade? At the store where everything is marked at "cut prices," where there is no guarantee of the goods? Or at the store owned by a man in whom you have confidence—confidence in his goods and in the honesty of his prices? Of course, there is only one answer. The

County Agents in Europe

IT'S marvelous how soon a good idea spreads. They are taking up the county agent plan of improving farming in Russia!

They don't have counties, and don't call 'em agents; otherwise it is much the same thing. Experts are sent out to help farmers, advise them, direct their work, interest them in improved methods.

More than that, the teaching of better agriculture through the schools is being organized on a gigantic scale—very much in the fashion that the Smith-Lever measure has applied here. Russia is out for better machinery, better intelligence, American types of machinery.

There's going to be something doing in world agriculture when Russia gets organized to do her best, or even to do distinctly better.

The answer? It is that American farmers must keep edging ahead, and keep the lead.

Griggsby's Station

By James Whitcomb Riley

PAPA'S got his patent-right, and rich as all creation;
But where's the peace and comfort that we all had before?
Le's go avistin' back to Griggsby's Station—
Back where we ust to be so happy and so pore!
The likes of us alivin' here! It's jest a mortal pity
To see us in this great big house, with cyarpets on the stairs
And the pump right in the kitchen! And the city! city! city!—
'And nothin' but the city all around us ever'wheres!

Climb clean above the roof and look from the steeple,
And never see a robin nor a beech or ellum tree!
And right here in earshot of at least a thousan' people,
And none that neighbors with us or we want to go and see!
Le's go avistin' back to Griggsby's Station—
Back where the latchstring's ahangin' from the door,
And ever' neighbor round the place is dear as a relation—
Back where we ust to be so happy and so pore!

I want to see the Wiggenses, the whole kit-and-bilin',
Adrivin' up from Shallor Ford to stay the Sunday through;
And I want to see 'em hitchin' at their son-in-law's and pilin'
Out there at 'Lizy Ellen's like they ust to do!
I want to see the piece quilts the Jones girls is makin';
And I want to pester Laury 'bout their freckled hired hand,
And joke her 'bout the widower she come purt' nigh atakin',
Till her Pap got his pension 'lowed in time to save his land.

Le's go avistin' back to Griggsby's Station—
Back where they's nothin' aggrervatin' any more,
Shet away safe in the woods around the old location—
Back where we ust to be so happy and so pore!
I want to see Marindy and he's with her sewin',
And hear her talk so lovin' of her man that's dead and gone,
And stand up with Emanuel to show me how he's growin',
And smile as I have saw her 'fore she putt her mournin' on.

And I want to see the Samples, on the old lower eighty,
Where John, our oldest boy, he was tuk and buried—for
His own sake and Katy's—and I want to cry with Katy
As she reads his letters over, writ from the war.
What's in all this grand life and high situation,
And nary pink nor hollyhawk abloomin' at the door?—
Le's go avistin' back to Griggsby's Station—
Back where we ust to be so happy and so pore.

(By Permission of Bobbs-Merrill Company)

main object of advertising is to create confidence. The manufacturers who advertise in FARM AND FIRESIDE want first to create confidence in your mind as to their reliability, and if they are willing to go to the great expense of advertising to gain your confidence, is it likely they will disappoint you by selling goods that differ in any way from their claims for them? The concern that advertises has to be square—or go out of business. An advertised product carries its own guarantee.

And the Fathers also Ran!

THE enrollment in poultry, pig, and corn clubs in North Carolina for the past two years has exceeded five thousand each year. Besides these main clubbers there are scattering cotton, peanut, and potato clubs. The boys' fathers are taking off their coats and getting ready to show the youngsters they are also in the better-production race, although a little late in starting.

Our Letter Box

A Safety-First Lesson

DEAR EDITOR: A kind Providence must watch over the thoughtless, as the following incident will show. Something had been stealing the eggs from the hens' nests, leaving only the shells. A chicken snake, I knew, would not leave the shells, and there was no opening large enough to admit a dog or other large animal. After puzzling over the matter I decided to use poison. I put a small amount of strychnine in some eggs and thus baited the thief.

For three successive nights the poisoned eggs disappeared, and on the morning following the fourth night I found a skunk near the nests as dead as a door nail. I had one poisoned egg left over and, thinking I might have use for it, placed it on a box nailed to the wall in the cook-room.

A few days later while dusting off the top of the box I placed the egg on a table near by. One of the children came to the table and, while my back was turned, placed it in the egg basket on top of a lot of good ones. Strange

to relate, I did not think of the egg after finishing dusting.

A few days later a feeling of impending danger flashed over me, and with it the remembrance of the poisoned egg. Six eggs had already been taken out of the basket, but you may guess I was not long in making inquiries about that egg. Searching the egg basket I found it still on top of the pile of fresh eggs.

C. C. WARE, Georgia.

Mowed Among Bees

DEAR EDITOR: For the benefit of others let me tell how dangerous it is to be careless with bees. We used to keep a few stands of bees to produce our own honey. One summer they were neglected because of other work, and tall grass almost hid the hives from view. On this occasion Father decided to cut the grass with the mower.

Now, bees particularly dislike the sound of a mower or scythe, and ours were cross from not being handled. Even then all might have been well if Father in turning around had not caught the cutting bar in the leg of a hive, jerking it out and tilting the hive. In a moment the air was filled with bees which began to settle on Father and the horses, almost covering them. The horses became frightened, but we succeeded in getting them unhitched. One recovered, but the other died from stings about the head.

Thanks to the swift automobile of the doctor whom we called, Father finally recovered, though artificial respiration was necessary to save him. The mishap might have been greater if Father had not with presence of mind thrown the mower out of gear.

MABEL SHORT, Ohio.

Wants Shorter Hours

DEAR EDITOR: I was reading an article in the June 3d issue about the railroad men and the wages they are receiving. I am an engineer working on one of the leading transfer roads in Chicago. I am paid at the rate of 47 cents an hour. I put in from thirteen to fourteen hours every day, rain or shine. Now we are not asking for any increase in pay.

We have only asked for shorter hours, so that we may be able to see the inside of our house a little while each day, and to protect our health, and save ourselves from a nervous break-down caused from constant strain upon our nerves and long hours. It takes years and lots of experience to become an engineer. Railroad men risk their lives every day and night.

A. COLE, Illinois.

Keep Girls on the Farm

DEAR EDITOR: I have been reading in your paper and a lot more farm papers about back to the farm, keeping the boy on the farm, and articles of other description meaning the same. Now, I'm not saying anything against these things, for I'm but a boy, myself, of twenty-one years. Not on the farm all of those twenty-one years, but have been there almost all the time, living now where I was born, so I have not known any other home. Worked in the shops a few months, but didn't like them.

So you see that I'm writing from a little experience when I ask you why the papers never write anything on keeping the girls on the farm? You mention farm to ninety-nine per cent of them, they turn up their noses, so this is one reason the boys leave the farm. They go where the girls go. So now I would like to see a few articles in the farm papers on keeping the girls on the farm.

FRANCIS ALBRO, Oklahoma.

Expresses Appreciation

DEAR EDITOR: I wish to express my appreciation of the very kind and helpful letter of February 15th, in reply to my query as to the relative values of Indian and Kafir corn. I have a remembrance of three different questions sent to as many papers, and the replies indicated that either the writers knew nothing of the subject inquired about or had not read my letter so as fully to understand what the query was. Your reply was very satisfactory, and ended with an invitation to come again. What more could one ask or expect?

C. A. JACKSON, B. C., Canada.

Have You Used Bunchers?

DEAR EDITOR: I have read with much interest the article in the June 3d issue on "New Ways With Hay." I would like to know if any readers have had experience in using bunchers for cutting the ordinary grains.

ED SCHMIDT, Pennsylvania.

[Persons having such experience will please address them to the Editorial Department, FARM AND FIRESIDE, so they may be published at the earliest possible time. Also, how is the grain handled after it is bunched?]

Good Health Talks

By DR. DAVID E. SPAHR



THE eradication of hay fever depends upon the eradication of the weeds that cause hay fever. Such measures have been started in several States with a measure of success.

The hay-fever weeds are on the farmers' black-list, as they have no redeeming features in utility, scent, or color. Hay-fever weeds are wind-pollinated, are very numerous, and produce great quantities of pollen.

All hay-fever weeds are wind-pollinated, otherwise their pollen would not be in the air to irritate the nostrils of susceptible persons. Bright colors and sweet scent are intended to attract insects for fertilization, and are therefore absent in hay-fever weeds, which are wind-pollinated.

Among the hay-fever weeds which will soon be in flower and distribute their noxious pollen are the yellow dock (*Rumex crispus*), careless weed (*Amaranthus hybridus*), cockle bur (*Xanthium strumarium*), etc. The grasses also are noxious to a certain class of hay-fever sufferers and should not be allowed to bloom unless intended for seed.

Dr. W. Scheppegrell, president of the American Hay-Fever Prevention Association, calls attention to the daisy fleabane (*Erigeron*), which is beginning to bloom and whose toxicity has recently been established by this association. Children collect these flowers, and in one whiff will inhale sufficient pollen to cause a paroxysm of hay fever lasting three to five days. Such attacks are almost invariably attributed to "colds," the real cause not being suspected. It may, in addition, cause a sensitization, which will make the child susceptible to hay fever in later years.

For Nervousness

I have been very nervous for fifteen years, but much worse since being kicked by a horse and having six bones broken in my face. H. C. A., Ohio.

ANYONE as nervous as you are should keep from under the influence of drugs. Live out of doors as much as possible, sleep on a hard bed, take cold baths, drink hop tea or alfalfa tea, and eat lightly of good nourishing foods. You will build up your nervous system in this way.

Corns and Bunions

I am troubled with corns and bunions, and want treatment for same. Mrs. C. E. G., Colorado.

APPLY oil dressings and soak the feet in hot water every day, and see that your shoes and stockings fit; never too large or too small, too short or too narrow.

Keep the corns and bunions dressed down, and change your stockings three times weekly.

Loosened Teeth

Mrs. O. H. J. of Arkansas and J. H. A. of Utah write to inquire about a disease of the gums and teeth. From the meager description given I should judge that the disease is pyorrhea.

PYORRHEA invariably indicates autotoxemia of pronounced type. Keep the bowels open with some good liver pill and citrate of magnesia. Clean the mouth several times daily with standard menthol compound solution or gum wash (Talbet), using a stiff brush. Eat plenty of good nourishing food, and get your system above par.

Ringworm

Please give a remedy for ringworm. Mrs. Geo. N., Washington.

APPLY a one or two per cent formalin solution lightly for a few applications.

Intestinal Indigestion

Everything I eat or drink sours on my stomach, and my bowels get so full of gas that I am in misery all of the time. Can't eat anything sweet; can't stand severe physic. Am constipated most of the time. Mrs. N. S., Indiana.

TAKE a teaspoonful of soda bicarbonate in a glass of hot water to sweeten up your sour stomach; then take an ox gall compound tablet (Upjohn) after each meal, to supply the bile that is lacking for digestion.

1819 Miles in 24 Hours

As far as from New York to Denver

With a Hudson Super-Six

The Supreme Endurance Test

The Hudson Super-Six, in many a test, has proved itself the greatest car that's built.

No car has ever matched it in hill-climbing. No other stock car ever went so fast. None ever went so far at top speed. And no motor of its size ever showed such reserve power.

But here is a record which perhaps means most to farmers who buy cars.

Best Record by 52%

A Hudson Super-Six with stock chassis was driven 1819 miles in 24 hours on the Sheepshead Bay track on May 2nd. The average speed was 75.8 miles per hour.

That car, in a single round of the sun, went the distance from New York to Denver. It went 52 per cent farther than any other stock car had ever gone in that time.

One man drove it all the way. No man could do that in a car which was not vibrationless.

That man went farther in 24 hours than a man ever traveled before.

50 Miles in One

Some engineers figure that one mile at racing speed equals 50 miles of ordinary driving, in wear and strain on motor.

This car had run 2,000 miles before that test, at average speed of 80 miles per hour. So this 24-hour run made 3,800 miles which the car had been run at top speed—as high as 102 miles per hour.

Yet no part or bearing, when the engine was inspected, showed any appreciable wear.

The Thing You Want

What you want in a car above all else is reliability. And that's what these tests are proving.

It would take ten years of road work, perhaps, to show what we prove in a few days of speed work.

In all our tests we use a stock chassis.

The motor is exactly the same as in every Hudson Super-Six. So every man who buys a Super-Six gets the same super-endurance.

A Patented Motor

The Super-Six motor is a Hudson invention, controlled by Hudson patents. The principle which gives its utter smoothness is entirely new. That is why it out-performs any other car that's built. Or any car that can be built.

It develops 76 horsepower from a small, light Six. That is 80 per cent more than old types.

You rarely use that power. In ordinary driving you run at half its capacity, so the motor is never strained.

But the owner of a Super-Six knows that he has the power. He knows that his car is a master. He knows that in speed, in hill-climbing, in quick pick-up, no car can do what his does.

He takes pride in those facts. But his chief satisfaction lies in the car's endurance. He knows that his car will last. That another car at half the price might cost more in the long run.

Don't buy a fine car until you know the Super-Six. You would surely face years of regret.



7-Passenger Phaeton, \$1475 at Detroit

Seven other styles of Bodies

Hudson Motor Car Company

Detroit, Michigan

Silo filled in 8 hours

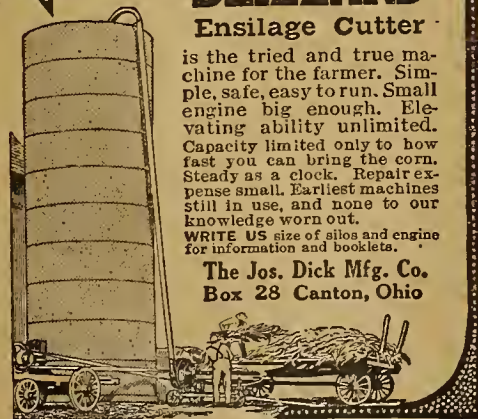
"This Silo 10 x 24, filled with No. 9 Blizzard with a 4 1-2 H. P. gasoline engine in 8 hours, by R. A. Blood & Co., Goshen, Ind." was the information sent us with the picture shown. The

BLIZZARD Ensilage Cutter

is the tried and true machine for the farmer. Simple, safe, easy to run. Small engine big enough. Elevating ability unlimited. Capacity limited only to how fast you can bring the corn. Steady as a clock. Repair expense small. Earliest machines still in use, and none to our knowledge worn out.

WRITE US size of silos and engine for information and booklets.

The Jos. Dick Mfg. Co.
Box 28 Canton, Ohio



GALLOWAY

SECOND EDITION NOW READY

Ask for your copy today. A postal gets it. The first edition of this big, 250-page book of Galloway bargains was exhausted. Second edition just off the press. It describes the famous Galloway line of Sanitary Cream Separators, the Galloway gasoline and kerosene Engines, the new, modern Galloway Manure Spreaders, our new 12-20 h. p. Farmobile; Galloway Farm Trucks, all kinds of farm machinery, hay tools, ensilage cutters, power house accessories, grinders, buggies, wagons, harness, fencing, roofing, saddles, Galloway automobiles, stock tanks, corn tools, automobile accessories, sewing machines, household goods, carpets and rugs, furniture, and a complete line of clothing for every member of the family.

I WANT YOU TO HAVE YOUR COPY OF THIS BOOK

You can get it for a postal. If it guides your summer and fall buying it will save you Four low from \$200 to \$500. It tells the truth about cream separators, it gives engine secrets and facts, it tells how and why the Galloway manure spreaders made Galloway famous. Four good fully describes my new 12-20 h. p. Farmobile or tractor. A copy of this book should be in the hands of every farmer. Ask for your free copy today. Address

WM. GALLOWAY COMPANY, Mfg. Specialists
397 Galloway Sta.
Waterloo, Iowa

Seven Styles: Farm trucks from 750 lbs. to 3 ton capacity

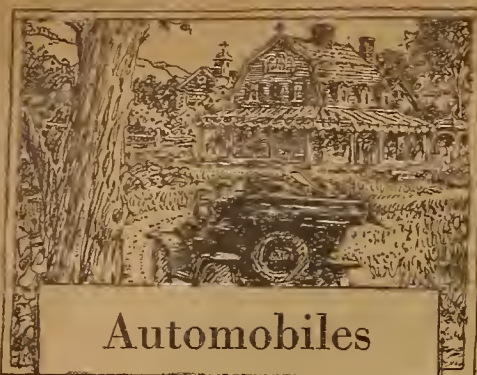
These Manure Spreaders made Galloway famous. Big, free book gives details of size and style.

Gasoline or kerosene engines from 1 3-4 to 16b. p.

Galloway's new 12-20 Farmobile. Low price.

Equal to 3 men and 3 teams

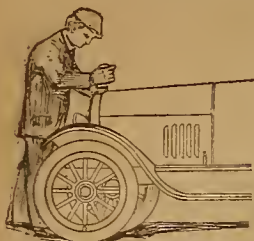
We guarantee that every subscriber will receive fair treatment from advertisers. It therefore pays you to mention Farm and Fireside in answering advertisements.



Automobiles

Improve Your Driving

By W. V. Relma



Keep the radiator full
tempt at improvement.

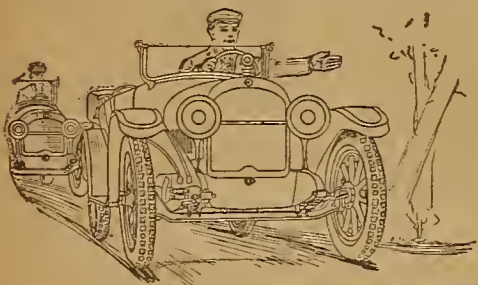
Good driving consists, first, in keeping the car in as good condition as possible. Always see that there is plenty of oil, gasoline, and water. More than enough for the contemplated trip is usually the best plan, as unusual conditions or an alteration in plans may make a good supply imperative.

Do not take this for granted, but make a personal inspection. Water, oil, or gasoline can all leak out overnight, even at a very small, almost unnoticeable leak. A radiator can be so thoroughly drained by a small leak overnight that to run the next day without refilling would cause an overheated motor and possibly one or more burned bearings. Radiators have a habit of starting to leak without any warning whatever. It is not necessary that they freeze or take part in a collision. The continual vibration of the motor and the jolting over rough roads may cause it.

The tires need the next attention. Keep them inflated to the pressure recommended by the manufacturer, and thereby prevent rim-cutting and blow-outs.

Where Book Learning Will Help

All automobile companies furnish complete books of instructions, and also charts giving directions for the oiling

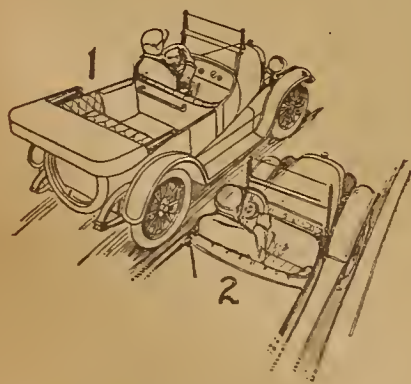


Signal the following driver of your
intention to turn

and greasing of the different parts of the car. While to many persons these instructions seem overfull and burdensome, a more faithful following of the manufacturer's instructions would keep more cars out of the repair shops.

The study of how to change gears is something that few people thoroughly master. They shift fairly well on the level road during ordinary driving, but when in traffic or when going up or down hills there is usually a great clashing of gears.

The driver should not start from his own private driveway into the open road without properly watching and



Dangerous for car No. 2 to attempt
to pass No. 1

warning the approaching traffic. A driver has no right to shoot his car suddenly and swiftly out upon the open pike without any consideration for other drivers.

The driver should not try to edge in and pass another vehicle on the right,

as he may get jammed into the curb or ditch and break a wheel, or meet with a more serious accident.

Always signal the driver following, if any, which way you intend to turn. The signal of extending the hand in the direction you intend to turn is getting to be generally accepted. The following driver then has an opportunity to change his direction accordingly.

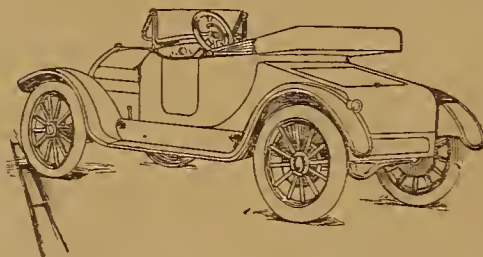
In these days of self-starters many people expect human intelligence on the part of the poor little starter. They expect it to start the car even if it is cold, without priming (which is usually necessary in cold weather). They expect it to start the motor even if the spark plugs are dirty and if the wires are broken and disconnected, if the valves need grinding, and in spite of a hundred different ills that can attack a motor. The starter is supposed to correct all of these defects, and to make the motor start off cheerfully and take up its work in the usual faithful manner.

Gently With the Brakes

By Carlton Fisher

PRACTICALLY all motor cars have powerful brakes, and may be brought to a stop in a very short distance—less than 20 feet—even when speeding along at the rate of 25 miles an hour. If a car has good brakes, the rear wheels can be stopped instantly, and after that all the braking is the friction of the rear tires on the ground.

Even with less sensational stopping the tires receive more wear than most drivers realize. One is likely to forget the comparatively great weight of a car, especially when he has been accustomed to using horse-drawn vehicles.



When stopping on down grades, turn
wheels toward curb or bank

The careful driver shuts off his power long before he reaches his stopping point, and lets the car coast most of the way on its own momentum. Then he very gradually puts on the brake and brings the car to a stop without a tremor.

"I know I am an old granny about stopping," one driver who is very careful about this matter remarked, "but I notice that my casings don't come to grief the way I have seen some do, simply because I don't grind them by sudden braking. My brake bands also last longer, and what I am interested in is the greatest service from my car at least expense."

When stopping upon a grade in town, turn the front or rear wheels into the curb. Then an accidental shove or push or a slight loosening of the brake will not allow the car to slide down-hill. In the country, of course, a stone can be used for the same purpose. A great many accidents occur every year because many people do not take this simple precaution.

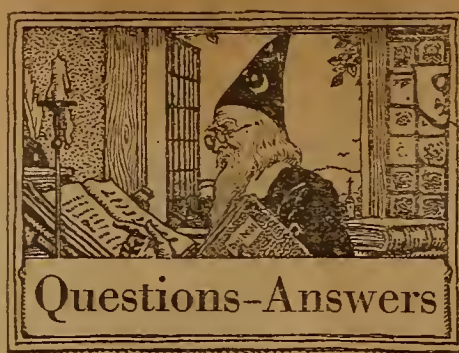
Coming Tractor Shows

THIS year there will be eight large tractor demonstrations all of which will be well worth attending. Already thirty-four manufacturers of farm tractors and seven companies making engine plows have agreed to exhibit at all the places at the dates mentioned below:

Dallas, Texas, July 17 to 21.
Hutchinson, Kansas, July 24 to 28.
St. Louis, Missouri, July 31 to August 4.
Fremont, Nebraska, August 7 to 11.
Cedar Rapids, Iowa, August 14 to 18.
Bloomington, Illinois, August 21 to 26.
Indianapolis, Indiana, August 28 to September 1.
Madison, Wisconsin, September 4 to 8.

In addition to plowing, which heretofore has been the chief attraction, there will be demonstrations of disking and pulverizing, so that visitors may see the complete preparation of seed beds, all done by tractors.

These exhibits have been recognized by tractor manufacturers as national demonstrations, but there will also be smaller local exhibits held by county agents and in connection with fairs. Persons interested in any particular kind of tractor may learn the nearest place it can be seen by writing to the Machinery Editor, FARM AND FIRESIDE, Springfield, Ohio.



Questions-Answers

To Remove the Warts

A fine Jersey cow which I own has developed warts on her teats. I have tried several things to remove them, but have failed. Black oil, which the veterinarian recommended, did not do the trick. He said that he could remove the warts if the cow were dry, but his treatment would make the teats sore and I could not milk her. So I have avoided that treatment.

A. C., Michigan.

PURE castor oil applied after each milking will generally remove warts. It requires a month or two to get results. Sometimes a more vigorous treatment becomes necessary. Unless the warts are too numerous and too old the quickest plan is to clip them off close to the teat with sharp scissors. Then touch each place with caustic potash, being mindful to wrap paper around the potash to prevent burning the hand. This method will cause considerable pain to the cow. She will have to be confined in a solid stanchion, and one of her fore feet tied up to keep her quiet during the operation. The teats will be sore for several days, and the milk should be drawn with a sterilized milking tube. In all probability the foot will have to be tied up while the milking tubes are used.

Feeding Milk to Pumpkins

Is there a way to feed a squash or pumpkin vine on milk or water by laying the vine in the liquid? I have heard that it can be done in some way, and as a result the pumpkin becomes very large.

C. D. Doane, California.

THERE is a common belief that pumpkins and squash can be grown to greater size and more rapidly when the vines are fed milk. One of our readers asserts that he has seen a pumpkin thus grown that made an enormous growth. The vine was cut about three feet from the pumpkin. The end of the vine was placed in a vessel containing whole fresh milk. The vine sucked the milk. It was thus fed every day. This is only one story, however. We should be glad to have the experience of other readers on this phenomenon.

Wound on Fore Leg

I have a horse that has a wound on its fore leg between the hock joint and knee. The skin has parted about two inches on the leg, caused from the swelling. The horse seems to get the seab off some way or other, probably at night when it lies down. I think the wound needs something that will keep it moist so the hair will grow back on it. What shall I do?

Here is another question: My neighbor has a young horse that has been down all summer. It is so weak that it can hardly stand up. The trouble seems to be in its blood more than anything else. My neighbor has asked me to write to you concerning his horse, and if you have a good blood purifier or any suggestions, please submit in your next letter.

W. H. P., Idaho.

YOUR description of the case is still so obscure that we are at a loss to know just what to prescribe. The hock joint is on the hind leg, and corresponds to the knee of the fore leg in position. You do not say what caused the sore, whether it is a cut, bruise, bite, or burn. Apparently it is a spreading sore, and a large one, and as you wish to keep it moist and it may be eczematous, we can only advise you to rub it with oleate of mercury once a day and keep the horse tied up or muzzled so that he will be unable to bite the part. Write us again, if necessary, relative to this case.

The neighbor's horse, from your description, seems to have "swamp fever" or "mountain fever," and it is practically incurable. Write to the Idaho Experiment Station and ask them to send you a bulletin on the subject.

Wants Good Advice

Will someone please give description of plan in actual use for saving liquid manure in stables? L. C. L., Vermont.

Tons of Hay in Mow

How does the weight of a cubic yard of hay in the bottom of a mow compare with that at the top?

W. W. C., New Hampshire.

ESTIMATING the weight of hay from its volume is not very satisfactory, and weighing is preferred wherever possible. Twenty-five cubic yards of meadow hay in windrows weigh about a ton. When well settled in mows and stacks, 15 to 18 cubic yards of the same hay will weigh a ton. When taken out of the mow or stack and loaded onto a wagon, it expands again, and as loaded about 20 to 22 cubic yards will weigh a ton. Three cubic yards in the bottom of a stack or mow weigh about as much as four cubic yards at the top. On an average, the total cubic yards of hay in a mow divided by 20 will give the approximate number of tons.

For the New Lawn

I have a new lawn. The grass is about an inch high. How soon should I roll it, and how often should it be cut this season? Mrs. G. A. Bauer, Ohio.

THE time for rolling depends somewhat on the character of the land. If the soil is heavy or clay-like in character the rolling of it when the grass is too young will have a bad effect on the grass, especially if the earth is wet. The rolling should be done when the soil is dry. Ordinarily the grass should be more than an inch high before the roller is used. After the grass is two inches high it should be clipped as often as it needs it, depending a good deal on the weather and soil. The lawn mower should always run freely and without clogging.

This will not be possible after the grass has reached a certain height, and is perhaps the best test of the proper time for clipping. New seeded land should have plenty of available plant food within reach of the grass roots.

If finely pulverized stable manure, street sweepings, or sheep manure is spread thinly over the lawn several times during the season it will help the sod amazingly. In the absence of these, one-half pound of good commercial fertilizer to each square rod of land will be beneficial.

Making Good Silage

My farm is adapted to the growing of corn, but I have never put up any silage. I have just contracted for a silo. I want to learn the principles of silage-making so that I will not go wrong when I put in my corn. Will you explain briefly how the best silage is made?

E. J. Edeler, Wisconsin.

IF THE making of silage were explained as the canning of the entire corn plant there would be less misunderstanding of the operation. To get the best results the corn must be at the right stage of ripeness. Dent corn should show the dent; flint corn should begin to glaze before it is cut. In your locality the corn may probably be left until there is danger from frost. Well-eared corn makes the best silage, although well-matured fodder corn with few ears will make good silage if some grain is fed with it. The best silage is made from corn that is put into the silo when first cut. If it cannot be put in promptly it should be laid on the ground in bunches so it will not dry out. There is no need of salt in the silage.

The most important thing in silo-filling is the packing. One or two men should be kept tramping in the silo all the time while filling is going on. The silage soon gets hot by fermenting processes and the mass is sterilized. The corn is "canned," in other words.

Chicks Roost on Ground

The young chicks in my flock will not go on the roost. I have been putting them there night after night, but they persist in crowding together in a corner on the ground.

E. A., New Jersey.

MAKE a platform of pieces of lath or other light boards sufficiently close together to keep the chicks from getting through. Place this platform a few inches above the floor. If it is so low that they cannot get underneath they will soon learn to roost on the platform.

After a short time this platform can be raised and the chickens will not note the difference. Then they will go to perches with little difficulty.

Perhaps the perches in your house are too high to encourage the chicks to roost there.



Crops and Soils

Fighting Hessian Fly

By Harry M. Ziegler

PLOWING ground kills Hessian flies while they are in the pupal or resting stage. This is the form in which they live before they emerge as flies. Planting the wheat late means the flies that were not killed by the plowing, or were in other fields that were not plowed, will develop into flies and not have any wheat on which to lay their eggs. Co-operation is necessary because serious infestation may come from a field half a mile to a mile away. The fly attacks rye and barley as well as wheat, but it does not trouble oats.

The Hessian fly has other troubles of its own too. There is not anything a still smaller fly would rather do than lay eggs in the larvæ of the Hessian fly. The partly grown Hessian fly then not only furnishes a home for these smaller parasitic flies, but provides the food for them. A Hessian fly larva thus used soon ceases to be. The parasitic fly cannot be depended upon to kill all of the Hessian fly larvæ. The parasite does not do much of its Hessian fly destruction until the Hessian flies have increased to great numbers.

Hessian flies come from two sources—the stubble of the previous crop, and volunteer wheat. Thus it is necessary to start the fight on the Hessian fly a year before harvest.

The life history of the Hessian fly is both interesting and inspiring. Interesting to know how well Nature has provided for the multiplication of the foes as well as friends of the farmer; inspiring to a better farming practice.

The time the fall brood of Hessian flies emerges from the pupal, resting, or flaxseed stage into the full-grown fly varies from the middle of August in the North until the last of October in the South. The most of the flies emerge in the wheat belt during the last two weeks in September and the first week in October, depending on the locality. This is the reason for planting wheat after the flies have emerged and laid their eggs.

During their brief existence as flies the females lay from 100 to 150 eggs. The eggs are reddish-colored, are deposited in parallel rows on the upper surface of the leaves of the wheat, the barley, or the rye plant. Every row of eggs will be composed of three to five eggs.

The eggs hatch within a few days into small reddish maggots. The maggots are cylindrical, are twice as long as broad, and soon turn white. They crawl down the leaf and burrow into the plant between the leaf sheath and the stalk. Here is where the Hessian fly sucks the juices of the plant and causes such serious damage.

By the time winter arrives the maggots have become full-grown; their skins have changed to brown, and have become hardened. This is the way the flies pass the winter. This stage is known as the pupal, resting, or flaxseed stage. They resemble a flaxseed in this stage.

Infected Plants Winter-Kill

Infested wheat plants have broader, shorter leaves of a darker green color than fly-free plants. The infested plants do not tiller or stool, stand straight upward in the row, and do not cover the ground between the rows. Infested plants winter-kill easily.

The flies that have survived the winter emerge from the flaxseeds early in April. These flies deposit their eggs on the leaves of the uninfested plants. The eggs hatch into maggots within four to eight days, become full-grown maggots within three to four weeks, and enter the flaxseed stage. It is this spring brood that causes the straw to fall badly a short time before harvest.

If the stubble is disked immediately after wheat harvest, many of the flies in the flaxseed stage are exposed to unusual climatic conditions which prove fatal to them. Such a farm practice also conserves moisture and makes plowing easier. From three to four weeks after disking, the ground should be plowed to a depth of six to seven inches. All stubble and volunteer wheat should be buried under at least three inches of soil. This will prevent the flies from reaching the surface of the

EW

soil. After plowing, the ground should be refirmed and worked into a good seed bed. It should be kept mellow and free from weeds and volunteer wheat.

Burning wheat stubble or wheat straw in the stack does not control the Hessian fly; but if such a practice is continued widely, millions of dollars' worth of organic matter and plant food will be destroyed.

Many of the flaxseeds of the Hessian fly are located so low in the crown of the plant that burning the stubble would not destroy them. Many other flaxseeds are in the straw above the ground higher and would be destroyed, but not enough to justify burning the stubble. The parasitic fly that preys upon the Hessian fly spends its summers in the stubble and straw above the ground. Thus burning the stubble would destroy the parasitic fly. Then there is the danger of a fire getting beyond control and spreading to other fields.

Danger of Straw Worm

Light dressings of straw may be spread upon fields without spreading Hessian flies. The winter temperatures would destroy most of the fly flaxseeds in the straw. The only danger from spreading a light top-dressing of straw on fields would be the danger of spreading the joint worm and the white straw worm. Injury from these insects can be recognized by the presence of white heads of wheat in the field. Unless the field was badly infested with these two worms the year previous, there is no danger of spreading them.

Rye can be planted for fall pasture in communities where the farmers have been depending on fall wheat for pasture. The rye will become infested with Hessian fly, and should be plowed just before winter begins, or in the spring before the first of April. This will destroy all of the flaxseeds of the fly in the rye. Where spring pasture is needed and rye does not winter-kill, rye can be planted in the fall after the flies have emerged and deposited their eggs.



Plowing stubble late in July or early in August exposes many Hessian flies in the flaxseed stage to unusual climatic conditions that are fatal to them

A Good Second Crop

By A. L. Roat

I ALWAYS make at least one field produce a second crop. In my section of southeastern Pennsylvania, buckwheat is my favorite. Where poultry and bees are kept, buckwheat as a second crop is valuable.

As soon as the rye is cut it is removed from the field and the soil immediately conditioned. Then buckwheat is sowed at the rate of one bushel to the acre. I find that when the plants are given ample space to stool out I get a better harvest.

When the blossoms open on the buckwheat the bees harvest the honey. Of course, buckwheat makes dark-colored honey, but it is delicious and always acceptable on hot cakes when the winter mornings grow frosty. Then, too, buckwheat honey can be kept for the bees' winter food and the best honey can be sold.

When the buckwheat ripens it is cut and then threshed in the field and the straw is used on that field for a mulch covering.

The buckwheat grain not required on the farm for poultry and other uses is sold or exchanged for feed. I consider buckwheat as a second crop a very profitable one because it is sowed late in the summer and harvested late in the fall, thus keeping the land producing, which means greater returns from the fields, and a larger income.

Poor soil must be fertilized for buckwheat. A complete mixture, 300 pounds to the acre: 2 per cent nitrogen, 8 per cent phosphoric acid, and 5 per cent potash.

For Soil Fertility

By Harry B. Potter

YIELDS of oats, barley, grasses intended for pasture and hay, and alfalfa have been decreased this season in Tennessee and many other Southern States by the cool, damp spring. Plant lice multiply rapidly under such climatic conditions and sap the life from the growing crops. Many a man became faint of heart as he watched his crops under the power of these lice, and found that nothing could be done then to help the plants win out.

After the lice are well along in their destructive work the parasites come. One of the most active of these is a bee. This bee soon rids the plants of lice, and the crops proceed from that point in their growth to develop normally. But they have lost out in their early development. That loss can never be recovered. If the season has been cool and damp, the lice have multiplied ahead of the parasites; if the season opens warm, then the bee gets in his work and destroys the lice at the outset.

In Tennessee it has been found that if nitrate of soda is applied at the rate of 80 to 100 pounds to the acre early in spring, the lice do not do so much damage to crops on such areas as where the land has received no fertilizer. This fact, perhaps, suggested to the experimentalists that if the ground was rich crops could withstand the lice attacks easier. This belief is being substantiated by observation.

Two Tennessee alfalfa fields were located side by side. The farmer of the one had supplied his field with barnyard manure and commercial fertilizer; the other had simply grown the crops in his rotation without thought of adding fertility. It was the latter farmer who called in the county agent to look at his alfalfa. The crop was turning yellow, was not developing as it should. Lice covered the plants. The agent noted the next field. He saw that lice were few and that the alfalfa was grow-

ing nicely. The soil of the two fields was the same; the seed had been purchased from the same source; everything was the same except the soil fertility. The farmer and the agent recognized which field was richer.

The county agent feels that he has learned a lesson. He now advocates increasing the fertility of the soil in order that the lice pests may be held down. That, he tells his farmer friends, can begin now.

A Wheat Delusion

THE notion that there is a wonderful wheat which will make the fortune of anyone who plants it seems to be almost as old as agriculture itself. In this country, at least, such an assertion was made for the so-called Jerusalem wheat as early as 1807, and under the name of Alaska wheat this identical variety is still being pushed upon the unwary at exorbitant prices for seed. Almost equally exaggerated claims are made for the Stoner variety, but this wheat has not such a long history.

Because of the many attempts that have been made by promoters to foist these wheats, under one name or another, upon the farmers of the country, the U. S. Department of Agriculture has made careful tests of their value. In Bulletin 357 of the Department the results of these tests are said to show conclusively that neither of the wheats possesses any peculiar quality which justifies high prices for the seed. Many varieties grown commercially throughout the country have, in fact, proved to be somewhat superior to either the Alaska or the Stoner.

Adds a Healthful

Zest to any Meal

Most everyone likes a hot table drink, but it must have a snappy taste and at the same time be healthful. Probably no beverage answers every requirement so completely as does

POSTUM

This famous pure food-drink, made of roasted wheat and a bit of wholesome molasses, affords a rich Java-like flavor, yet contains no harmful element.

The original Postum Cereal must be boiled; Instant Postum is made in the cup "quick as a wink," by adding hot water, and stirring.

Both forms of Postum have a delightful aroma and flavor, are healthful, and good for children and grown-ups.

"There's a Reason"

Sold by Grocers everywhere.

YOUR SEED DEALER RECOMMENDS
THE STANDARD INOCULATION

FARMOGERM

He knows it Means Crop Insurance for Alfalfa, Vetch, Clover, and all other legumes. Bigger and richer crops for less money and labor. Ask him about it or write to us. Dept. 75 for "The Legume Grower"

EARP-THOMAS FARMOGERM CO.
BLOOMFIELD, N. J.

BOYS!

Get This AIR-RIFLE

Without Spending One Cent

The Daisy Air-Rifle is a repeater. It shoots 350 times without reloading. It is strong, durable and shoots accurately. It cultivates truthfulness of sight and evenness of nerve. This rifle is harmless. It uses no powder—just air. Air is plentiful and shot costs but 10c for 1,000. These fine air-rifles are provided with pistol-grip, true sights, and are strongly made. Boys have use for it every minute—hunting in the woods, shooting at targets, drilling as soldiers, and innumerable uses that only boys can discover. Every boy will want one of these rifles, and this is an unusual opportunity to get a high-class Air-Rifle.

BOYS

Send a postal to FARM AND FIRESIDE to-day. Just say you want an Air-Rifle without having to pay one cent. Thousands of happy boys easily earned them this way.

WRITE TO-DAY

Address

FARM AND FIRESIDE
Springfield, Ohio



Beet Seed "Made in America"

By W. F. Wilcox

THE sugar-beet industry was handicapped this year by lack of seed. War abroad, where we get our beet seed, made the supply short. The Great Western Sugar Company has planted 3,000 acres of "mother" beets in the vicinity of Fort Collins and Loveland, Colorado. These beets were laid aside last fall and stored during the winter. The beets were carefully selected last fall; by August they will have attained their complete growth and yielded their seed harvest for the planting of 1917. The present year's crop will yield the mother beets for the seed harvest next year. Several companies are engaged this year in producing their own beet seed, so it is hoped that hereafter America will be independent of foreign countries in the production of its beet seed.

Fight Bugs with Bad Odors

AN OHIO fruit grower, O. C. Emory, has furnished FARM AND FIRESIDE his plan of preventing insect injury to all kinds of tree fruits, which he has used for this purpose for about twenty years.

His remedy is a mixture of equal parts coal tar, turpentine, and kerosene oil. This strong-smelling mixture is placed in small baking powder cans or similar containers having tight covers. Just below the cover, holes are punched through which the fumes escape. Three or four of these boxes hung in each fruit tree, Mr. Emory claims, will effectually keep all insects from injuring the fruit or foliage during the season.

Another insect repellent Mr. Emory uses to prevent borers and other insects from injuring the trunk and large branches of fruit trees is a paint mixture made by dissolving a good quality of lye soap in water to the consistency of paint, and adding a little kerosene oil to this paint. (The quantity of kerosene oil was not stated by Mr. Emory.) These home-made remedies Mr. Emory recommends for a small orchard where the fruit business is not large enough to need a spraying outfit. An experiment with these simple remedies on a few plum, peach, and cherry trees for a number of years will tell the story of their value.

When Fruit Hangs Too Thick

By George F. Potter

IT PAYS to thin apples in seasons when trees are bearing too heavy a crop. Proper thinning reduces the number of fruits, but those remaining are so increased in size that the yield is practically as much as when no thinning is done, and there is a much smaller proportion of culls and poor apples.

The work should be done when the apples are about one inch in diameter. Fig. 1 shows a branch of a Wealthy

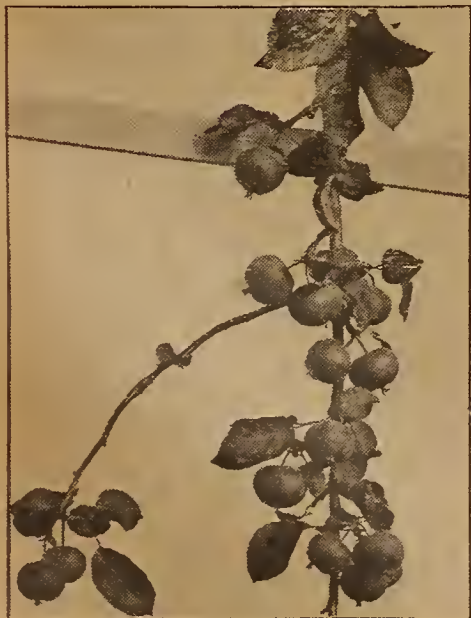


Fig. 1

tree which is too heavily laden with fruit, and Fig. 2 the same branch after it has been properly thinned. It is best to remove all apples borne terminally or at the ends of the

branches. Where two or more apples are attached to the same fruit spur, only the best one is allowed to remain. If the spurs are too close together, all the apples are removed from some of them so that the fruits are five, six, or sometimes eight inches apart. In this work the operator must endeavor, wherever there is a choice, to take off the apples which are smallest, which show marks of insects or disease, and which are poorly shaped.

Some prefer to do all of the thinning by hand, removing the apples by twisting them backward, taking care when removing an apple from a spur which contains more than one fruit not to disturb or injure the one which remains. An inexpensive pair of thinning shears



Fig. 2

is a great help, particularly where the apples are thick, as the small fruits can be clipped off without disturbing in the least those which remain. It is no small task to thin a large apple tree properly, but the crop is so much more easily harvested at picking time that it is economy of labor in the end to clip off the apples when they are small.

Making the Most of Water

By S. A. Wardlaw

IN SUMMER the hot sun gets a large percentage of the moisture whenever plants are watered in the usual way—that is, by application above ground. When water is scarce or must be carried to plants in a sprinkling pot or applied through a garden hose, the amount evaporated is a serious loss.

This water may be conserved to a great extent by perforating the bottoms and lower parts of the sides of discarded tin cans and sinking them close to the roots of the plants.

Shrubs and ornamental trees can be more effectually watered by sinking pieces of pipe (gas pipe or spouting have proved satisfactory) beside each plant at such an angle as to direct the water toward the roots of the plant.

If after refreshing the plants with a little water above ground, these cans and pipes are filled and covered so that no moisture can evaporate, every drop of water will go to the plants. For a small bed of pansies, violets, strawberries, or plants of similar growth that have been placed at even distances apart, lengths of tin or iron pipe will answer. Holes should be made in them at intervals to match the spacing of the plants, and the pipes placed in shallow trenches close to the roots. If there is more than one row of plants the pipe can be made to water two rows at the same time.

These pipes should be closed up at one end, the other should be bent upward toward the top of the ground. Water poured into the upper end will be forced through the holes directly to the root of each plant. The earth should not be packed too closely around the pipe, which should be easily removable in case the holes become clogged.

This method is better than irrigating ditches above ground for garden beds where water is limited and the number of plants is small, as it puts the water where it does most good and foils the robber sun. Old pipings of various kinds can often be had at little cost.

TRY double cropping with plants like melons, pie pumpkins, late cabbage, cauliflower, and the like. A crop of quick-growing stuff can be ready to harvest before the slower growers cover the ground.

HELP the public rural-school youngsters to make a start in cleaning up and beautifying the school grounds. Many rural-school surroundings disgrace an otherwise attractive neighborhood. It starts the children right, too.

The Raspberry Coming Back

By F. M. Whittier

FOR some years both the red raspberry and blackcap raspberry have been somewhat out of favor among growers on account of the trouble arising from insect enemies and fungous diseases which made the returns more uncertain than from strawberries, blackberries, gooseberries, and currants. But of late a renewed interest is being felt in raspberries as a better knowledge of their protection is learned, and the shortage in the markets of raspberries occasioned by the less number grown makes the price attractive.

Experienced growers know that there is little difficulty in propagating most varieties of the red raspberry. Ordinarily all that is necessary is to take the young plants that sprout up from the mutilated roots of bearing canes and set them where a new plot is to be grown. A few varieties, however, send up suckers sparingly, and in these cases it is sometimes necessary to resort to root cuttings. In this method the roots of the plants are dug in autumn and cut into pieces three or four inches long. These are stored in a cool cellar, buried in moist sand. They are planted as soon as the ground can be worked.

The best results will be secured by setting these root cuttings in furrows, leaving one end of the cuttings just slightly below the surface of the soil.

Propagating blackcaps is a very simple process, as it is only necessary to cover the pits of the long canes when the fall rains begin, and roots will form and the new plants can be then cut off and set where wanted.

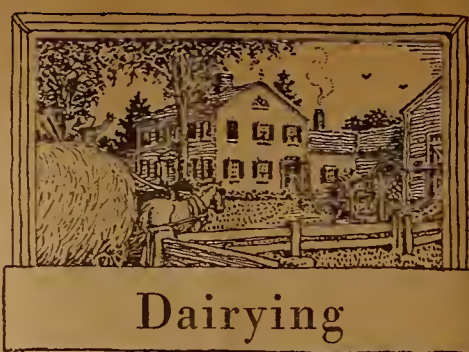
The old Cuthbert variety still remains the favorite in most localities for commercial crops, and Marlboro is the favorite for an earlier variety. The blackcap or black raspberry favorites are Kansas, Palmer, Black Diamond, and Cumberland. The old standard Gregg variety is still generally found in the "best sellers" of the most successful growers of black raspberries.

In some of the famous raspberry-growing sections of the Pacific Northwest there is now a tendency to grow raspberries in rows with the plants only a few inches apart in the row and the rows about six to eight feet apart. The old plan of growing plants six feet apart each way is becoming obsolete. The present practice among these large growers is to train the canes over wires. Instead of topping the vines they are bent down and fastened to the wires, and in some cases are woven among the wires instead of being tied. In one system used a wire is fastened to the post about 40 inches from the ground on the side toward the canes, and another wire about 52 inches from the ground on the other side of the post. The old canes are securely tied to the lower wire at three or four inches apart. The upper wire supports the weight of the canes when loaded with foliage and berries. With this system the canes are topped when about six feet in height.



Cultivation for raspberries should be given with just as much thoroughness as for corn. After the first spring plowing, to prevent too great width of the rows of red raspberries, thorough cultivation should follow at least every two weeks until picking time, except during the blossoming season or when the fruit is setting.

What is true with all small fruit and most crops, if productive paying crops are wanted, there must be plenty of plant food available with which to make a quick and vigorous growth of cane, with plenty of fertility left over to grow large and well-formed berries.



Dairying

Butter for Dairy Lunches

By E. H. Newman

LIVING as we do within the so-called milk-shipping district of southern Wisconsin, which supplies both Milwaukee and Chicago, it took considerable courage to begin making butter. Our neighbors considered there was more money and less work shipping milk. But as our farm was 4½ miles from the receiving station, we decided to try butter. And now, even though a milk-route wagon passes our door, we are still making butter, and getting better returns than the milk would bring.



The dairy-lunch market is just being discovered. Have you tried it?

At first we tried the direct-to-consumer plan, since we wanted to get the best possible prices. But the numerous small shipments, the varying tastes of the people—some wanting more salt than others, and some no butter color—also irregular payments, soon taught us that all is not gold that glitters. So we began to look for another field. About that time we heard that dairy lunches bought some of their butter direct from farm dairies, so we decided to try that market.

We selected a firm and made them the following proposition: "We will send you a sample of our butter. Try it, and if it meets your requirements set a price on it."

The firm we selected was very particular about the quality of their butter. The first sample we sent them did not meet their requirements. But they wrote us telling in what way we could improve it to suit their taste, and they asked us to ship them another lot. They said they would mail a check the following week for it. This they have never failed to do, the price being based on the Elgin market.

Likes Fiber Butter Boxes

The first few shipments were made by parcel post, but Uncle Sam failed to please, for they reported that the butter reached them in poor shape. So we tried express, which evidently is satisfactory, as we have never had complaints since. One of the first things we had to learn was the fact that our market was governed by standards over which we had no control, but which we were nevertheless obliged to live up to.

We are obliged to mold the butter into pound bricks. This is absolutely necessary because our dairy-lunch firm has a machine into which these bricks are put and molded into 200 small pieces, one going to each diner. For shipment these bricks are packed 50 to a case. The cases are made either of basswood or fiber. The fiber case looks neater, and I think stands the handling just as well. Besides, they are lighter, which makes expressage less. We use no special cases for summer shipment.

Up to this year we have used no ice, but last winter we built an ice house, and from now on we shall be able to control the temperature of our cream better than with just well water.

Our herd is composed of grade Guernseys and Jerseys, and we are using a pure-bred Guernsey sire. Most of our cows were purchased in the surround-

ing country, but we now raise all our heifer calves, no matter how large or small they may be. Until they are two weeks old we let them have whole milk; then we put them on skim milk. When they are getting skim milk, we keep before them all the time a mixture of two parts whole oats, two parts shorts, two parts bran, and one part oil meal. They learn to eat this ration very quickly. All skim milk not required by the calves is fed to the chickens. We find that this nets us more money than to feed it to pigs. The only time we feed milk to pigs is just at weaning time.

Our method of conducting the dairy is simple, and we find that a fixed system gives best results. We are always very regular about milking time. As soon as a cow is milked, the milk is poured into a strainer which also contains a piece of cheesecloth doubled.

Buttermilk for Starter

This removes dust which sometimes gets into the milk in spite of every precaution. The cheesecloth is washed and scalded after each milking, and is thrown away at the end of the week. When milking is over, the milk is taken to the separator room and separated. The cream is allowed to cool, and then is put into five-gallon cans, where we let it collect till there is enough for churning.

We then pour about one quart of buttermilk into each can for a starter. This buttermilk is from the last churning, and must be kept at a temperature of from 60 to 65 degrees. We prefer buttermilk to sour the cream because it leaves no white curds in the butter. After the buttermilk is added we keep the cream at a temperature of 64 degrees, and in twenty-four hours it is ready to churn.

We use a barrel churn. As soon as the butter comes in small particles (about as large as wheat or very small peas) the buttermilk is drained off through a milk strainer which catches all the butter that is likely to go with it. We then wash the butter till it is entirely free from buttermilk. This is never less than three washings, and we use the milk strainer with the water the same as with the buttermilk, so as not to lose any butter.

Average Price Thirty-two Cents

Then we weigh the salt, using slightly less than one ounce for each pound of butter. We never touch the salt, but pour it directly from the bag into a stone jar which is kept covered when not in use. From the jar we pour the salt onto the scales, and then use a wooden spoon to add it to the butter. We work it, and the final step is to print into molds ready for shipment.

Though we have had many inquiries for our buttermilk, we have never been able to compete with the artificial buttermilk that is sold in the cities. People do not feel inclined to pay more, or to pay the express on it, and while we can obtain five cents per quart for it delivered in the city, the shipping charges eat up all the profit. So we feed that to the pigs and chickens.

Last year we shipped 3,001 pounds of butter, or an average of about 58 pounds a week. We milked ten cows, so that each cow produced close to six pounds. This is of course just ordinary production, but is satisfactory considering the cows were bought at sales. I like a large cow, the bigger the better. I find that the more feed a cow can eat the more milk I get. The price we re-

ceive is three cents above the Elgin market, and we pay the express, which amounts to less than a cent a pound. We received last year for butter \$960.32, which makes an average of 32 cents a pound.

If all farmers would try and meet the demands of the purchaser of his products, he has at his command an unlimited field. I have never been able to meet the demand halfway for my butter, eggs, and chickens since I started.

"Starchy" Milk Cloths

ATexas subscriber writes: "Please tell me through FARM AND FIRESIDE what makes cream thick and slimy. In washing cream and milk vessels my cloth gets slick just as if it had been in thick starch. Also, what makes small white lumps in my cow's milk?"

Milk and cream both contain albuminous matter which, in addition with the fat, will always cause a cleaning cloth to become slippery unless something is used to "cut" the fat and albumen. A small stiff brush, lukewarm water, and a good washing powder or dairy cleanser are the best means of washing milk utensils. Do not use soap, and you will find that a brush does the work more thoroughly than a cloth.

If the cow is healthy and the udder is not inflamed, the small white lumps observed in the milk are probably bits of casein which are very often found in the milk of heavy producers. If the milk is normal in every other way, this should be no cause for worry.

Water Tastes of Paint

"I APPLIED black roofing paint to the inside of a metal water tank," writes an Ohio dairyman, "to prevent rust, and now the water tastes of paint and the cattle refuse to drink it."

The paint was probably a tar-containing preparation of some kind, and it may be impossible by air-drying to get rid of the taste in a reasonable time. If emptying and filling the tank with water several times does not cure the trouble, the only permanent remedy will be to remove the paint.

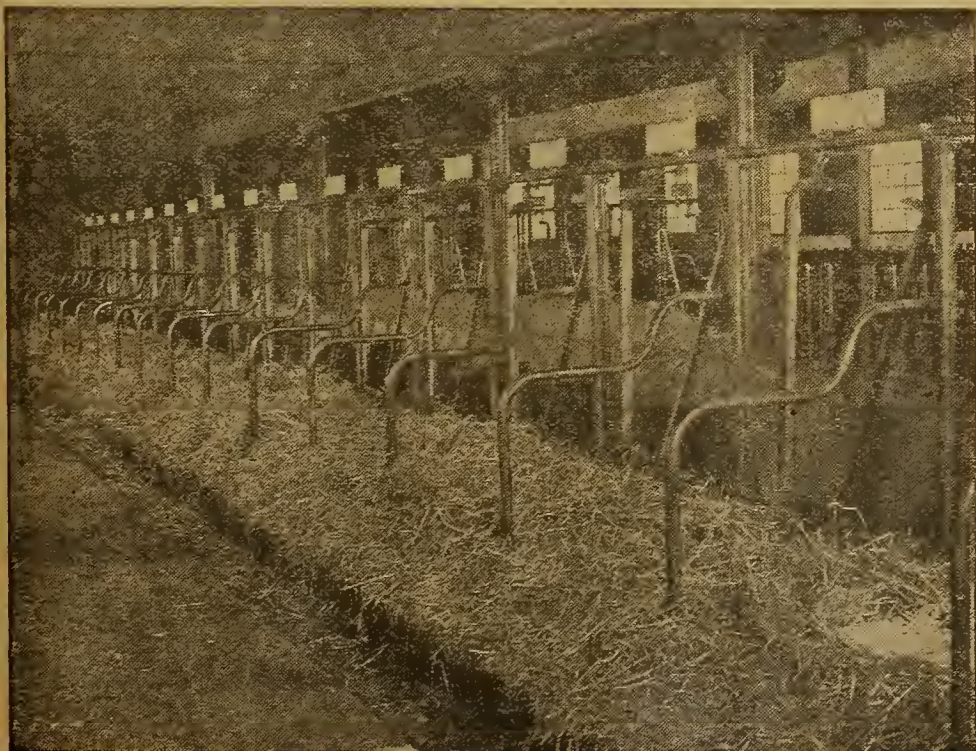
Coating the existing paint with enamel or varnish would give some relief, but no paint works satisfactorily over tar, as the tar will penetrate it and the surface coat will crack. The best method of procedure for the present is to try to overcome the offensive taste by filling the tank several times and taking pains to draw off the water completely each time before refilling.

Concrete Stable Floors

A READER has again brought up the question of concrete for the floor of cow stalls. There is no serious objection to concrete floors for warm or moderately mild climates, providing they are given a rough finish by means of a wooden float and are kept well bedded. The disadvantages of being somewhat cold and slippery when wet have in many cases been exaggerated.

Concrete is no more slippery than a wet plank, and is little colder than wet ground. Concrete has the advantages of being everlasting, easily cleaned, and is one of the very few substances that does not absorb the liquids of manure.

However, when bedding is scarce, the use of creosoted wood blocks or cork bricks laid on a concrete foundation make a warmer floor that is nearly as durable as concrete itself, and is used in many high-class dairies.



When plenty of bedding is used, a concrete floor is comfortable as well as sanitary. Cork bricks, wood blocks, and wood panels may also be used as floor coverings over concrete foundation

HOT WEATHER

the season a

DE LAVAL SEPARATOR

saves most over
any other separator
or skimming system



IT'S A GREAT MISTAKE FOR any dairy farmer without a separator or using an inferior machine to put off the purchase of a De Laval Cream Separator in the summer months.

GREAT AS ARE THE ADVANTAGES of the De Laval over all other separators, as well as over any gravity setting system, at every season of the year, they are even greater during the mid-summer season than at any other time.

THIS IS BECAUSE HOT weather conditions occasion greatest butter-fat losses with gravity setting and render it most difficult to maintain quality of product with any gravity system or unsanitary separator, while, moreover, the quantity of milk is usually greatest, and any loss in either quantity or quality of product means more.

THEN THERE IS THE GREAT saving in time and labor with the simple, easy running, easily

cleaned, large capacity De Laval machines over all other methods or separators, which naturally counts for most at this time of the year.

HENCE THE GREAT MISTAKE of putting off the purchase of a De Laval Cream Separator in summer, whether you already have a poor machine or none at all, and every dairy farmer should keep in mind not only that a De Laval will pay for itself by next spring but may, if desired, be bought on such liberal terms as to actually save its own cost while being paid for.

EVERY CLAIM THUS MADE is subject to easy demonstration, and every De Laval local agent is glad of the opportunity to prove these claims to you, in your own dairy, without cost or obligation on your part.

IF YOU DON'T KNOW THE nearest De Laval agent please simply write the nearest main office as below.

The De Laval Separator Co., 165 Broadway, New York
29 E. Madison St., Chicago
50,000 BRANCHES AND LOCAL AGENCIES THE WORLD OVER

Eli HAY BALERS

bales that pack better and bring higher prices. Many exclusive construction advantages. Must be seen to be appreciated. L. J. Campbell, Caldwell, Kans., writes: "The most perfect baler I ever saw." You'll agree, 40 styles and sizes. WRITE FOR LATEST CATALOG and tell us what you bale. We'll recommend best machine for you.

COLLINS PLOW COMPANY, 1110 Hampshire Street, Quincy, Ill.

More bales per hour. Fast, big feed—won't choke. Dense, uniform



A GOOD POSITION OPEN


Here is a chance for someone in your county to get a permanent position that will pay well. It is mighty pleasant work, and we guarantee good pay for the man who is willing to hustle.

If you want to make more money than you do now, or if you are looking for a good job, write to us to-day.

FARM AND FIRESIDE

SPRINGFIELD, OHIO

Get This BIG



PARRETT TRACTOR CO.

PARRETT TRACTOR

"SPEAKS FOR ITSELF"

ONE MAN ALL PURPOSE

FOLDER FREE

Just drop us a post card at once and we will send you this big catalog folder by return mail. It tells about the many superior mechanical features of the New Parrett—One Man—All Purpose Tractor. It illustrates some of the remarkable tests which we have made at the various National Power Farming and Tractor Demonstrations. It answers all your tractor questions by telling the actual experience other farmers have had with the Parrett. Send for this big folder today—see for yourself how the Parrett Tractor will be a big money-making, money-saving investment for your farm.

Parrett Tractor Co.
909 409 Fisher Bldg., Chicago

APPLETON Silo Filler

Actual records prove that Appleton Silo Fillers cost the least

per ton of silage put up or per year of life. Tremendously strong construction makes an Appleton practically proof against breakdown. Solid oak and steel frame, mortised, braced and bolted; impossible to pull out of line. Many exclusive power and labor saving features, such as independent belt driven blower allowing speed to be adjusted for minimum use of power for any height silo; frictionless feed table running on chilled iron rollers; knives spiraled to give clean shearing cut, requiring least use of power. (10 lengths of cut, 5-16 to 2½ inches.) Lowdown cut-under frame, easy to handle. Both feed rolls and table controlled by single lever. Positive self-working safety device.

Two Books Free: One on silo building and silage crops; the other a complete catalog of Appleton Silo Fillers in four sizes for 4 h. p. gasoline engines and up. Write

Appleton Mfg. Co. 409 Fargo Street, Batavia, Ill.



Guaranteed to do more and better work with less power than any other silo filler.

We are at Your Service

Your subscription to Farm and Fireside entitles you to the services of the Editorial and Business Departments of the paper free. We spend a lot of time and money to collect information on the things that affect you and your business. We wish to give you the benefit of this information. Feel free to write to us if you need information or desire advice.

Address the Editorial Department for any information you may desire on any or all of these subjects: Live Stock, Dairy Methods, Poultry-Raising, Crops and Soils, Seeds and Nursery Stock, Market Packages, Automobiles, Garden and Orchard, Farm Machinery, Household Equipment, Insect Pests, Handy Devices, Recipes, Good Books, and Health.

Address the Circulation Department if you wish to know about Premiums, Agencies, Subscriptions, or Clubbing Offers. Address the Pattern Department if you have questions concerning Patterns and Fashions. Address the Business Manager if you desire information about Advertising Rates, or Reliability of Business Concerns.

If you are in doubt about which department to write, address the Editorial Department and your inquiry will be cared for properly.

If there is something in Farm and Fireside you like or don't like, let us hear about it. Don't wait until you have a question to ask.

Farm and Fireside
Springfield, Ohio



Live Stock

Breeding Experiment

By Frank D. Tomson

AN INTERESTING departure from the usual scope of experiments with live stock has been made by the Kansas Experiment Station at Manhattan in co-operation with the Animal Husbandry Division, Bureau of Animal Industry, Washington, D. C. A breeding experiment has been started with beef-breeding cows that is to run for twenty years, the purpose being to ascertain whether or not there is a specific type of cow which can be relied upon to produce beef calves of prize-winning merit.

Twenty Shorthorn cows have been put into this experiment, and were selected by Professor W. A. Cochel of the Kansas State Agricultural College and W. F. Ward, senior animal husbandman in Beef Cattle Investigations, of the Department of Agriculture, from the herds of the best Shorthorn breeders in the country. They were not selected upon the basis of their merit and breeding, but because each had produced an outstanding calf.

An inspection of this group of females furnishes the evidence that Professors Cochel and Ward had a clear and definite conception of the purpose in hand. They adhere to the type generally accepted by experienced breeders as the most reliable producing type. They are of breedy appearance, distinctly feminine in character, of smooth conformation, level lines, carrying an even distribution of flesh, and also displaying pronounced milking qualities. The shoulders are well laid, hips well covered, and there is ample depth of middle. Without exception they adhere decidedly to the breed type.

It is the purpose to mate with these females Shorthorn bulls bred along show-yard lines. The first sire to be used is Matchless Dale, the present stock bull in the college herd, a massive son of the noted sire Avondale.

The experiment is now under way. The first crop of calves will be dropped in September, and it is needless to say that more than ordinary interest will center in this first group of youngsters.

The purpose is to follow a process of elimination, discarding those cows that do not measure up to the required standard as producers and substituting others bred within this group. Whether the specific purpose for which this experiment is being conducted will be fulfilled or not, there is certain to be a vast amount of light shed upon the problems that confront cattle breeders who will attentively follow the progress of this undertaking. The result should have a far-reaching influence in the important field of cattle improvement.

Light or Heavy Hogs

By W. A. Graham

THE standard breeds of hogs as now so well developed are all good. No one can find objections to anything except too large a bone, which compels growers and feeders to take too much risk of disease and death before the hogs can be marketed.

While the big-boned and, consequently, extra-large hogs, when finished for market, are not objectionable in many ways, I have found that they are not as profitable or as safe to grow as light-boned hogs that mature and fatten well and are ready for market at from seven to ten months of age. I will give my reasons for advocating the growing and fattening of hogs that are, or can be, large and fat enough for butchering or marketing at a varying weight of from 150 to 250 pounds. First, such hogs can be grown cheaper than those of coarse bone, which take many more months to mature. Second, one gets rid of them without as much risk from disease and death as is experienced with large hogs weighing from 400 to 600 pounds when well fattened. I am met in this argument by the inquiry: "How is one to feed out all his grain or make hog-growing a good money-making proposition if he sells his animals so light in weight?" I am able to show the way out of any difficulty arising on this point. It is simply to grow more pigs—double the number if it is necessary, which is easily done.

There was in the past a better demand and a better price for the extra-

large and very fat hogs. The great quantity of lard they yielded was the main factor in stimulating an extra price a hundred pounds. The quantity of salable meat the carcass of a hog will yield from the butcher's block or the city packing house is the requirement now.

Finally, I must show that it is decidedly in favor of the small-boned hogs, which mature and get fat at from six to ten months of age, when it comes to growing them. And this is how such a thing is brought about: The first one hundred pounds of any hog is decidedly the cheapest to produce. All hog growers will agree with me about that. Then the second one hundred pounds costs more than the first; and so on up to any weight. The last hundred pounds put on an already quite fat hog costs the very highest price, because it is all fat that is being put on. So I find the lighter hogs, but fat, are the profitable ones for the average farmer.

Foot-and-Mouth Disease

THE biggest trouble in keeping foot-and-mouth disease under control lies in the fact that hogs carry it with symptoms which we are not likely to read correctly. A common symptom of the disease is sore mouth, and all cases of sore mouth should act as alarm signals. Hogs have infectious sore mouth which is not foot-and-mouth disease, and sore mouths often accompany hog cholera. Sore feet are not so very uncommon even in the absence of infectious disease. Yet sore feet are a symptom of foot-and-mouth disease.

We should all co-operate with the authorities in this matter.

If Pasture is Low

SELLING alfalfa hay to the hogs for \$25 a ton sounds like a good business proposition, particularly when crops of three to five tons to the acre can be grown annually. Hog-feeding tests made by the New Mexico Experiment Station show that when no pasture is available alfalfa hay fed to hogs in connection with grain concentrates will give good results.

These experiments show that 585 pounds of good alfalfa hay will make 100 pounds of grain, or save to the feeder 500 pounds of grain concentrates composed of ground barley and wheat shorts. The hogs used in these experiments weighed 170 pounds at the beginning of the test. The average gain per day for a period of thirty-six days was two-thirds pound a day on the alfalfa-hay, ground-barley, and wheat-shorts ration.

When the hogs were fed silage in place of the alfalfa hay, the gain of the alfalfa-hay-fed hogs was \$28.82 greater for each carload fed. Stated differently, the alfalfa hay that had a commercial value of \$10 a ton, and fed to the hogs in connection with grain concentrates, gave the feeder \$15 profit per ton on the hay.

The alfalfa hay consumed by the hogs during these experiments constituted nearly one third by weight of the food eaten. The average daily consumption of alfalfa hay was three pounds, and of silage five pounds, by hogs that weighed 170 pounds at the beginning of the experiment.

The Horse's Eyes

By F. H. Sweet

MOON BLINDNESS is a recurrent ophthalmia or inflammation of the conjunctival membrane of the white of the eye and the lining of the eyelids. Close, dark, ill-ventilated stables predispose the horse to moon blindness. The peculiar characteristic is its periodical recurrence until total blindness results. Because the attacks often follow each other at intervals of about a month, many erroneously suppose that they are influenced by some phase of the moon—hence, the name.

The ignorant recourse to knocking out the wolf teeth and cutting the haw, or winking cartilage, cannot be too severely condemned. Tonics are recommended for horses affected with moon blindness, as well as such other measures as tend to the improvement of the horse's condition.

As the conjunctival membrane is the same in the eyeball and the lid, the eyelids suffer more or less in all severe inflammations of the eye. Sometimes disease of the eye starts in the lids, while at other times it is exclusively confined to the eyeball. Inflammation may be caused by local wounds, stings of insects, or exposure to drafts.

Warts and tumors of the eyelids are removed by constriction or the lancet.

Not infrequently irritation and consequent inflammation known as trichiasis is caused by the turning in of the eyelashes. In case of a single eyelash it may be snipped off with scissors or pulled out by the root with tweezers. Where the divergent lashes are more numerous, a delicate surgical operation is necessary.

As heredity manifests itself to a marked degree in many diseases of the horse, including many forms of eye trouble, intelligent breeders will not accept animals with abnormal eyes for breeding purposes.

Internal ophthalmia, as well as the recurrent type described as moon blindness, commonly results in cataract.

A white worm from half an inch to an inch long is sometimes found in the lachrymal duct and under side of the eyelids and haw. This worm should be removed with forceps and the eye be treated as for external inflammation.

A Venture in Runt Pigs

By T. J. Wood

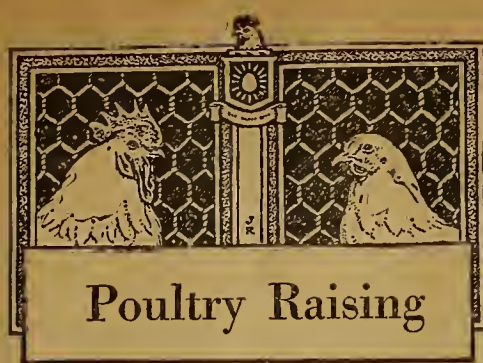
I GOT two runt pigs a year ago last April at \$6—worth about \$3—on a bad debt; and in July I bought four more for \$6.25, all runts but one, all two months old. I kept all six on the slop and waste out of the garden and some fallen fruit. In September I turned them on one acre of peas, and twice a day 14 cows were on for one hour, so the peas did not do the hogs much good.

They ran out until the first of November, when we put them in a close pen and fed corn twice a day, mostly nubbins, and I kept up the slop—just the dish water, no bran slop. In all I was out for hogs and corn \$28.25.

They dressed 775 pounds net, so by figuring everything after it is put away the way it sells here, lard and all, I have \$130 worth of meat. So many think it does not pay to put up meat; I think it pays, and pays big.



Many feeders rough steers through early winter. Then, beginning in February, they feed snapped corn. The steers are finished late in July



Poultry Raising

Reducing Breakage Losses

By Arthur J. Thompson

ACCORDING to marketing reports, one egg out of every ten gets cracked or mashed or becomes a leaker between the hen and the consumer. I have been a producer and shipper of eggs for several years, and after giving some attention to the handling and shipping of eggs I am convinced there is no need of such heavy losses.

First we must aim to get good, strong shells. Many hens are kept housed or yarded the year around, and of course there must then be a good supply of shell and grit at all times. My personal experience is that even with a good supply of shell and grit at hand hens will not always eat enough lime to shell all of their eggs good and strong, so I have adopted the plan of mixing some ground shell with their mash and get good results.

Another cause of breakage is that our commercial cases are not properly made.

You will notice in the accompanying drawing (Fig. 1) how the ordinary cases have a cleat nailed on the inside of the cover that lays on top of the fillers to keep them from moving. These cleats are responsible for much breakage. Many are longer than the fillers are deep, so those cleats rest on the ends of the underlying eggs, and not only crack those but others in the layers beneath.

I have been shipping my eggs in cases of my own make as illustrated in Fig. 2.

This case has no cleats on the inside of the cover, but has them on the end, shutting down over the outside end of the case so as to meet the handle. This makes fully as good an appearance as the other type of egg case, and saves the breakage of a great many eggs, as the fillers may be held in place with corrugated papers.

Our express agent was remarking one day how many people brought cases of eggs there with eggs broken on the top layer, and to illustrate it he opened my case. As he did so he noticed that mine did not have the cleat, and said that that was the reason he so seldom found a cracked egg in my cases. He further stated that as they have to inspect every case delivered to them, they always find the broken eggs directly under those cleats.

As there is no patent on this method of making cases, I sincerely hope manufacturers of cases will adopt this plan. I believe it will not only greatly lessen the damage to eggs, but will also be a source of profit to all shippers, as all eggs so broken are indirectly a loss to the shipper on account of the reduced price at which they have to be sold.

Natural Shelter for Poultry

By E. L. Vincent

ONE who has been on his job knows how heat affects hens. To watch them as they go around with open mouth and wings drooping is proof enough that some kind of shelter from the rays of the sun is needed. If we follow the birds into the houses we shall find, too, that it is not an ideal place in which to rest up after such tramps as hens take when they are on open range. The roofs of most houses are low, the ventilation is none too good, and the air is simply stifling during hot midsummer days.

For a number of years we have been in the habit of planting a field of silage corn near our poultry houses. Two or three things are gained by this plan. The hens fertilize the corn as they work around in it and we usually get a fine crop. Then, too, the earth being most of the time freshly turned up by the cultivator, the birds can dig in it to

their hearts' content. They find many a worm, and need less meat.

But the best part of it is the shelter the hens get in the hottest part of the year. The corn plants get up tall enough by late July and August so that they afford a fine shield from the sultry sun. For some time we were so fearful that the hens would work at the stalks and the half-grown ears of corn that we did not take much comfort pasturing our flocks in this field; but we have learned that the loss to the crop is very little compared with the gain to the flock. We now permit the birds to run in the corn freely, and are sure it is about the finest thing for hen comfort we can do. Saying nothing about the economy in feed, the comfort gained by the hens while roaming through the corn patch in hot weather is a most profitable thing.

Range versus Confinement

By B. F. Kaupp

THE farm test flock on the Iredell Farm, managed by the North Carolina Experiment Station, was divided April 1, 1915, into two flocks. Flock No. 1 consisted of a yearly average of 81.2 hens, and was confined in a yard having no grass or other green feed, while Flock No. 2 consisted of a yearly average of 83.4 hens, and was allowed to run on range.

The feed of both flocks consisted of corn, wheat, and oats, equal parts by weight, and one pint was given to each dozen hens, night and morning, in deep litter on the floor of the hen house.

Bran was given the birds in a dry form from a mash hopper kept in the hen house. The range flock received exactly the same kind and amounts of feed as the flock kept on dry lot. The lot on range had the advantage of gathering green feed, meat food in the form of bugs and insects, and foraging around the barn where there is always more or less waste grain.

We also found that a dirt floor resulted in a cloud of dust being raised during the scratching hours. The dust accumulated in the nostrils and lung cavities and caused trouble. The trouble ceased when the floor was covered six inches deep with cinders, crushed rock, or gravel (not clay mixed), or when the floor was concreted.

The flock kept in confinement before molting laid 3,440 eggs, which was an average of 41.2 eggs per hen. The range flock laid 4,082 eggs, or an average of 50.2 eggs per hen—an average of nine eggs per hen more than the hens kept constantly confined.

The confined flock consumed 4,850.2 pounds of feed, which cost \$73.21, and exactly the same amount was consumed by the flock on range.

The cost of feed, the value of poultry on hand at the first of the year, and interest on the investment (but exclusive of labor) for the flock in confinement was \$123.41 against \$122.25 for the range flock. At the end of the year the value of manure and poultry sold and used was \$122 for confined flock against \$138.46 for the range flock, or a profit of \$17.62 for the range hens and a loss of \$1.41 for the confined birds.

Movable Pen for Poultry

By A. L. Roat

I FIND a movable pen for young poultry—chicks, ducks, geese—is practical because the yard and pen can be moved to new range whenever necessary. The pen is a box built in sections and put together with hooks—of the take-down type. The top of the box is hinged. A wire-covered door on the front of the box provides safety at night. Then, too, if the grass is wet the youngsters remain in the yard till the dew dries in the late morning. The yard of the pen is made in three sections and hooked to the box. A wire gate on the end of the yard closes the yard pen. The top as well as the sides of the yard can be covered with poultry netting, and thus keep out cats, dogs, and hawks.



This knock-down, screened-in pen is never out of a job where poultry abounds. Chicks, ducklings, goslings, poults, and even puppies can be corralled in it

The Mailed Fist in Culling

By Vincent Lee

IT TAKES a man with spunk to thin out his birds so that he may have a good working force later in the season. Many times I do hate to pick up the thrifty-looking hen and say, "You will have to go." In the same way to sort the pullets over and take away those that "might possibly" lay next winter calls for a fine exercise of grit. We have these birds now. It has cost us a fine penny to get them up where they are, and we dislike to part with them just when the promise of future service seems best.

But it never pays to mince matters in dealing with questionable birds. No matter how well a hen looks, if we know she is getting along in years, as a rule her profit is past. I have had hens lay pretty well for two or three years and then drop right off suddenly.

It is the same with pullets that are in any way off condition. Every bird that is slow about making growth, or which has a delicate appearance, ought to be disposed of as soon as possible. A little extra feeding will make these birds ready for the market, and that is where they should go. It is hardly possible to take an immature, pinking pullet and make it a profitable member of the flock.

From the time that bird was hatched it should have been marked for an early doom. I find that weak, slow-growing birds are the ones that take the profit out of many a man's business.

Still another place where we may show good judgment is in getting our flock worked down to the capacity of the houses. There is no more disastrous thing than to try to crowd a 100-bird flock into a 50-hen house. We may not have disease to combat, but we surely will not get as many eggs, and what we do get will not be as apt to be fertile when breeding time comes round again. Most of us like to make our space as remunerative as we can. We do not feel like putting more money into houses, so we crowd. The right thing to do is either to sell off the birds or make more houses.

Rearing Broilers

By Bert Edmonson

BROILERS ought to be in the market by the first to the fifteenth of August. To get them there by that time we need to do a bit of pushing toward the end. It is too late to say much about the early feeding of these little chaps, but if they have been brought up right this is what should help things along a lot right now:

Two quarts corn, the same quantity of oats ground together, two quarts corn meal, two quarts middlings, a quart of wheat bran, a quart each of granulated bone and meat scraps; mix with quite warm water. Let this stand a little while before feeding. One other good thing is charcoal, finely ground. Add a handful to the mash regularly. Also give an onion and cabbage hash once in a while. Give all the milk you can spare, and fresh water all the time.

Before taking to market, find your buyer. We have had good luck going to a good hotel and contracting the birds for a certain day. Then you can find just about what size is preferred. We find that the best weight is as near a pound and a half as possible. They ought to reach this weight when two months old. They will if they have been thrifty all along.

The sooner we can get them off and out of the way after they are of marketable size, the more profit there is in them. Every day they are kept after that is at a loss. The other chicks will not do as well either. The next best thing to selling to a hotel is to get in touch with some first-class and reliable meat-market man. There is no satisfaction whatever in trying to do business with a shifty, crooked man, and I am sorry to say there are some of those left in the world, although they are growing more scarce.

\$15.95 **ON TRIAL**
Upward
American
FULLY GUARANTEED
CREAM SEPARATOR

A SOLID PROPOSITION to send new, well made, easy running, perfect skimming separator for \$15.95. Skims warm or cold milk; making heavy or light cream. Bowl is a sanitary marvel; easily cleaned.

ABSOLUTELY ON APPROVAL
Different from picture, which illustrates our large capacity machines. Western orders filled from western points. Whether dairy is large or small write for handsome free catalog. Address:
AMERICAN SEPARATOR CO.
Box 4058 Bainbridge, N. Y.

SQUAB BOOK FREE
Make money breeding PR squabs. 1916 demand biggest ever. Squab book free, telling money-making experiences. How to sell by parcel post. \$6 to \$8 doz. Start small, grow big. Many women customers. Write today. **PLYMOUTH ROCK SQUAB CO., 503 HOWARD ST., MELROSE HIGHLANDS, MASSACHUSETTS.**

PIGEONS PAY
Better Than Chickens
Young pigeons (squabs) bring 40 to 60c each when 3 to 4 weeks old. Big demand in city markets. Each pair of pigeons easily clear \$4 per year. Always penned up. Very little space and money needed to start. Free Book explains all. **MAJESTIC SQUAB CO., Dept. 10, ADEL, IOWA.** **FREE BOOK**

MINERAL HEAVE COMPOUND
In use over 50 years
CURES HEAVES
Booklet Free
\$3 Package guaranteed to give satisfaction or money back. \$1 Package sufficient for ordinary cases. **MINERAL HEAVE REMEDY CO., 425 Fourth Ave., Pittsburg, Pa.**

Only \$2 Down
One Year to Pay!
\$24
Buys the New Butterfly Jr. No. 2. Light running, easy cleaning, close skimming, durable. Guaranteed a lifetime. Skims 95 quarts per hour. Made also in four larger sizes up to 5 L-2 shown here.
30 Days' Free Trial Earns its own cost and more by what it saves in cream. Postal brings Free catalog, folder and "direct-from-factory" offer. Buy from the manufacturer and save money.
ALBAUGH-DOVER CO. (12) CHICAGO
2139 Marshall Blvd. No. 514

MAGAZINES WITH FARM AND FIRESIDE

By special arrangement with several of the most prominent magazines in America, you can get any one of these periodicals for a year with Farm and Fireside as explained below.

Farm and Fireside, 1 year, regular price 50c } Both for **60c**
To-day's Magazine, 1 year, regular price 50c }

To-day's Magazine has been termed the one necessary woman's paper. This title seems quite appropriate because To-day's contains a valuable amount of important information which is both instructive and entertaining. The stories are wholesome and interesting. The fashions and hints on dress are up-to-date and sensible.

Farm and Fireside, one year, regular price 50c } Both for **50c**
Woman's World, one year, regular price 35c }

The Woman's World is one of the best magazines printed for the money; in fact, is superior to many magazines selling for more than this. It is not only attractive in appearance, but its columns are full of the choicest literature that money can buy. It is a big value at a low price. Every farmer in the country should take this opportunity of obtaining the Woman's World without cost in connection with Farm and Fireside.

Farm and Fireside The Housewife For One Whole Year } Both for **60c**

The Housewife is a bright, entertaining monthly magazine containing many wholesome serials and short stories and articles of unquestioned merit. It is a magazine that a woman looks forward to receiving each month. It is well illustrated with the work of the best-known artists. The Housewife is edited by Lilian Dynevor Rice.

ORDER TO-DAY
Farm and Fireside
Springfield, Ohio

Fireman Duffy

A Love Story About a Girl, Two Men, and a Fire

By JOHN A. MOROSO

Illustrated by George Avison

PART TWO

WE WERE rolling at full speed when we crossed Church Street and went on for the Broadway and Chambers Street crossing. There was a swarm of Jersey commuters bound west for the Erie ferry, and another stream of people bound east for the Bridge and Brooklyn. Trolley cars, automobiles, and trucks were tangled up in a very little space at the crossing because of the overhead wooden structure above the new subway excavation. But there was a canary in the middle of the crossing, and as soon as that Cossack cop heard Cinders yelp at his heels he made that tangle straighten out. We went through a slit in it with a shriek and a bang.

Passing Broadway, we took Center Street on the bias and headed north to Franklin. We turned into Franklin and reached the Bend. A battalion chief, looking like he was glad to see us, waved us over to the south to Worth Street, where we coupled in record time. Duffy covered his team and turned them over to the engineer and a cop to look after, for he knew that every man of the company would be needed for hard labor.

A great ramshackle building, a half block wide and five stories high, was one huge bonfire. I could tell in a minute that it was a paper-box factory and that it would burn right down to the foundations. We stretched in through the door of a six-story tenement adjoining, our job being to save as much of that building as we could.

The roof of the factory had blown off, and as ugly a pillar of flames and sparks as I ever saw was shooting a good one hundred and fifty feet in the air and bending over under a good breeze from the northeast. The buildings in the block were jammed together and laid out so that the owners would grab every cent's worth of rent space. Only a little square patch was left open in the center of the block, and I knew we could do no fire-fighting from that kind of a death trap. We would be lucky if we saved half of the block.

I heard somebody say that all the girls in the factory were safe at home, as the blaze started just after the whistle blew. I thanked God for that as we pushed through the narrow hall of the tenement, dragging with us the first stretch of hose.

We reached the top floor and found that the flames from the factory had chewed a hole in the tin cornice of the tenement and were biting away at the rafters under the roof. The wood-lined dumb waiters were giving all the oxygen and tinder the fire above us needed, and the plaster ceilings on the top floor were cracking and falling in sheets on our helmets. The walls were too hot to touch with the bare hand, for the fire in the rafters had already begun to mushroom downward. I put two men with axes and two with picks to rip a hole big enough for us to get a start with the water. A second and third bright nozzle came up to us through the gloom of the stairway and in a minute I had them all going in good shape.

IT WAS only a question of a few minutes when we would have to retreat to the fifth floor and attack the fire from there, for I could get a flash of flame every now and then from beneath the wainscoting, and smoke was curling from under the carpet of the room from which I was directing my company.

In the tenement districts there is always danger of some sick old man or woman being left behind in the first panic that comes with a fire. A beehive hasn't got anything on a Mulberry Bend tenement. I've seen old people sleeping in bathtubs, and babies in soap boxes on the fire escapes.

Duffy and Johnny Graham were near me, holding a nozzle between them. I had two men relieve them and ordered them to go with me in a search of all the rooms on the floor.

It was pretty hot by this time, and the last one of us had turned his helmet. The smoke was so thick that we had to feel with our hands as we groped from room to room in the four little cubbyhole flats on the floor. We found nobody, and worked our way to a rear window for a breath of air. The window we reached overlooked the little space in the center of the block. The rear wall of the factory had fallen and all the contents of the building had spewed into the court, setting fire to the abutting tenements. The court was a patch taken right out of the middle of hell, and we breathed fire instead of air as we looked out of the window.

"Flooy!" I whispered to myself. "This is sure a nasty one."

Suddenly I heard Johnny give a cry at my elbow.

"Holy Virgin!" he yelled as I turned to see what was the matter. One of his long arms was outstretching and he was pointing to a window across the pit of fire. A young woman was standing on

the outside of the window sill, holding to the sash with one hand and clinging to a baby that was kicking and clawing on her breast.

"They'll look out for her on the other street," I shouted to him and Duffy above the roar and crackling of the fire in the court and in the rafters above us.

"Like hell they will!" he shouted back. "That's my flat over there, and that's my Annie and my baby!"

He pushed me aside and leaned out of the window, looking up. I knew he was measuring the distance to the cornice of the tenement we were in. Then he pulled back in the room and banged down the sashes. The frames creaked as he crawled over them and finally worked himself to a standing position. He balanced himself and then leaped outward and upward for the cornice, catching it. The next minute he disappeared over the edge of the roof, leaving me wondering whether he had burned off his hands on the hot tin.

The roofs of the tenements on three sides of the block were level and I knew his plan was to make his way to the roof of his own flat house and above the top-story window where his wife and baby were caught. I looked and saw smoke pouring out of the scuttle and knew that the way to the roof was cut off for Annie Graham and her kid.

"The son of a salamander, I hope he finds a rope on the way!" I shouted to Duffy, when I'm brushed by the second time and my red-headed engine driver wriggles up that window like a boa constrictor, balances himself, and leaps upward and outward. I thought my heart had stopped, but he made the cornice and was out of sight.

My business was with my company, so I beat it back to the front and ordered the retreat to the fifth floor.

IV

WE GOT three more stretches of hose and a full crew of axmen on the fifth floor, and I knew that the fourth alarm had been sent in. With the reinforcement I knew that we would check our fire, and I hurried to the back to look for my two men who had gone to the roof.

I got to a window just in time to see Graham reach the roof above his wife and baby. He was running about like a lost dog trying to get the scent of his owner, and I knew that he was hunting for a rope; but it wasn't wash day in the Bend and poor folks don't leave their clotheslines out to tempt other people. He gave up the rope hunt and went to the cornice and leaned so far over toward his wife and

baby that I thought his balance would be lost any second and he would drop to his death. He tried to reach them, but he couldn't do it by three feet or more. She was still holding to the sash with the baby. Johnny wriggled back to the roof just as Duffy came running up to him. I saw the two begin to talk, both jawing at once, and Duffy looked desperate.

"Suffering Tammany!" I thought. "If they try to settle that old row now, it will cost four lives."

But there wasn't any fight. My driver seemed to win the argument on its merits and dropped on his belly to the roof. He flattened out and wriggled to the cornice and over it. His shoulders went over the edge, then the whole trunk of his body, and finally his knees came heaving over and I saw Johnny's handsome face at his heels. He was holding his enemy by the heels over the brink of a red-hot entrance to eternity. He had spread himself out flat on the roof and the two of them had gone this far like a broken-backed snake.

"JOHNNY GRAHAM is a strong man," I said to myself uneasily. "I see he's got his elbows braced right against the sheet metal and he can hold the weight that way—but can he pull them up?"

By this time Duffy's face was close against that of Johnny's wife. She was crying, but if he was saying anything to her I don't know. Anyhow, she got her nerve back in a few seconds and gave Duffy the baby. He caught it by its two fat wrists and I could hear it bawl as it swung out from the window.

"Now," I says to myself, "can Johnny Graham yank up my Mick and the kid? I believe he is going to do it, but it will be different when the woman gets on the far end of the line."

With a mighty tug Johnny got one of Duffy's feet to a shoulder and Duffy made fast with a toe-hold. Then Johnny got the other foot up and they were braced good and fast to the sheet-metal work. Then, instead of trying to crawl back and drag up Duffy and the kid, Johnny begins to roll on his belly and Duffy begins to swing like a pendulum. They ain't many men with the nerve and the strength to get away with the human pendulum, but it has been done before.

The arc widened as Duffy and the baby swung from side to side, until both men gave a shout and Duffy tossed the kid safely over his shoulder to the roof and caught hold himself. He skinned over.

Between smoke, clouds, and sheets of cinders I could get glimpses of Annie Graham on the window sill. The poor thing didn't have any too much time, for the fire was coming out of the window below and reaching up for a grip on her skirts.

On the roof Graham and Duffy didn't take much time to rest. I saw Graham examine his baby and then tuck it close to a chimney. He stretched his arms and Duffy did a little clog to get the kinks out of his knees. They talked for a moment and Duffy seemed to be bossing the job. Then the two of them unbuckled their waist straps and I saw as fine a piece of life-saving strategy as ever was pulled off by two smoke-eaters in New York. They both squatted on the roof, and with the belts and buckles Johnny made fast his wrists to the ankles of Duffy, his enemy. Tied together, they wriggled to the cornice, and over went my driver.

In a minute two links of real man was stretched from the roof to the one girl the two of them loved.

My lieutenant came and reported that the men had the fire driven back, and I told him to send what men he could spare to report to the battalion chief.

I turned again to the window, and the heat from below was so fierce that I wondered that my driver, hanging head down, could breathe. I saw his face come close to the face of Johnny's wife again and her arms outstretched to his shoulders. They stayed that way for a few seconds that seemed hours. And—they were kissing!

Then I noticed that there wasn't so much red hair on my driver's head and I knew that the heat from below was singeing it. How he stood it no human being could tell. He caught hold of Johnny's wife's wrists and she took hold of his. My big Mick lifted her up by the strength of his biceps and the shoulder muscles until she was clear of the sill, lifted her until her face was against his again, and then lowered her and the pendulum began to swing once more.

This time instead of a baby at the end of the pendulum there was a good one hundred and twenty-five pounds of girl. I held my breath. The whole strain was on Johnny's backbone, his elbows and wrists, distributed over the angle made by the elbow brace on the sheet metal.

Annie Graham's skirts flapped as she swung farther and farther on each side, the arc widening. Now it would be up to Duffy when he would try to heave her over the edge of the roof. If anything broke the three of them would



The arc widened as Duffy and the baby swung from side to side

plunge into the white-hot pit, the men strapped together.

I could see blood trickling from Duffy's nose and a big gout of it struck the uplifted face of the woman he was trying to save. I thought it was all over when I heard both men shout and Duffy's great shoulder muscles swelled up like they'd pop, and over the edge went Annie Graham. Duffy's hands snapped for and caught the tin cornice. There was a savage yank from Johnny and my driver was on the roof lying flat with the man he was tied to.

Just then two streams of water shot through the windows of the Graham flat and I knew a company had beaten out the fire in that building just as we had beaten out the one in ours. I turned my command over to the lieutenant and ran around the block to Park Street and up a ladder to the top floor and then to the roof over the Graham flat. Three firemen had already reached the roof and had cut the straps that held Duffy and Johnny together. Johnny staggered to his feet but Duffy lay still. Half of his fine red hair was singed off and his eyebrows were gone.

I got down on my knees.

"How's it, old man?" I asked in his blistered ear.

There was a slow choking sound from deep down in his great chest.

He tried to lift his hand, and I lifted it for him and he groped for his heart.

"Somethin' broke, Cap," he whispered. "Somethin' broke—Cap. Good-by."

His face came gray like the gray that fills the streets when a company's washing down a ruin after an all-night fight. The hand over his heart fell to the tin roof and the big biceps flattened out.

A fireman was taking Annie and the baby to the ladder, for there was fire still burning below, when Duffy shuddered and died.

I heard a strange whimper behind me and turned from the body of the bravest and finest laddie that ever wore the blue. Johnny Graham was on his knees with his face hidden in his hands and his body was trembling all over.

The Mortgage Lifters

[CONTINUED FROM PAGE 3]

another corn-belt State. Father bought 17 head of pure-bred Duroc Jersey sows and gilts and one boar. Later I bought two of the gilts for \$25 apiece.

In June one gilt farrowed ten pigs and the other nine. They each raised seven pigs. One sow raised two boars and five gilts, and the other four boars and three gilts. I kept the two best gilts from each litter, and sold the rest of the pigs that fall, after I had had them registered, at \$20 apiece.

The sows farrowed in February, during an extreme cold spell. One sow had two pigs and the other had three. Three weeks later the sow with two pigs lost both of them with thumps, and the other sow lost one of hers. This left me two pigs, both boars. Father knew I wasn't handling my sows right, but thought it would be a good lesson for me. He offered to make good my losses, but I wouldn't let him. I wasn't very enthusiastic about the hog business.

This was my first experience with brood sows. I had kept them too confined and fed them too much corn. They were much too fat. The pigs had had too much milk and not enough exercise. Both sows were bred again, and farrowed the following June. As they had been running on pasture and had been fed a slop made of shorts and skimmed milk, with a little corn, they were in excellent shape. One sow farrowed ten pigs and the other twelve. They each raised seven pigs.

Several years later, with plenty of clover and alfalfa pasture and supplementary feeds, good specimens of healthy, prolific pure-bred hogs, two litters a year, and a liberal amount of advertising in farm papers, I was able to clear from \$75 to \$100 a year from each sow. I never sold any hogs at fancy prices; neither did I pay fancy prices for any. All of the best hogs were sold as breeders. The others were fattened and sold for pork.

In our neighborhood in the new State, there were breeders of Poland Chinas, Chester Whites, Berkshires, Duroc Jerseys, Tamworths, and Hampshires. I had always liked Durocs and Berks, but after seeing our neighbors do as well, and some years better, I came to the conclusion that more attention should be paid to the individual qualities of the sows and boars used than to any particular breed.

I selected rather long, active sows for the breeding herd, and bred them to good-length, compact, massive, and active boars. I obtained more pigs to the litter this way, and the pigs were better feeders and made a more rapid growth. I never kept poor individuals in the breeding herd because they had

attractive pedigrees. All of my hogs were raised and fed under average farm conditions. The result was when I sold a man a boar or some gilts they gave satisfaction under average conditions.

The best gilts were saved from every crop of pigs to strengthen our brood-sow herd. When a sow became too old to produce and raise a litter of pigs, she was fattened and sold for pork. Our first consideration was to pick out a sow that was prolific. I had several in my herd that farrowed fourteen to sixteen pigs a litter, although they rarely raised more than eight.

My sad experience when a boy with small litters and thumps was never forgotten. After that all of my sows were kept in good breeding shape. They were never real fat, although they would fatten up a great deal after they weaned their pigs.

The brood sows were always kept by themselves. When the pigs were weaned they were separated. The boars were placed in one pasture, and the gilts in another. It would have been better, of course, to have castrated the boars when they were ten days to two weeks old, but as we only castrated those boars that didn't come up to our standard of excellence I generally waited until two weeks before they were weaned.

The gilts that weren't good enough to use as breeders, and the barrows, were placed in a pasture by themselves. They were fed a full feed of corn. When the pastures were dry, tankage was added to the corn ration—five parts of corn to one of tankage. This was changed when we had enough alfalfa for both pasture and hay. We fattened them on corn and ground alfalfa. The hogs always had all of the water and salt they wanted.

I never had to feed the dry sows much grain when they were running on pasture. One of our neighbors who didn't have pasture used to feed his sows, after they had weaned their pigs, about a pound a day of six parts shorts, three parts corn, and one part tankage.

During gestation the sows and gilts were fed a ration composed of from 50 to 75 pounds of corn to 50 to 25 pounds of alfalfa. Later the corn was decreased five pounds and tankage added. The sows and gilts were housed in a warm and comfortable place. They had plenty of sunlight. A week to ten days before they were due to farrow each sow was placed in a small pen by herself. She was given plenty of bedding. A two-by-four, with the longer dimension protruding out into the pen, was nailed eight inches from the floor on the inside of the pens to keep the sows from rolling on their pigs.

All I gave the sows for the first twenty-four hours after farrowing was warm water with a little shorts. This tended to hold back the milk flow and checked the tendency to fever. I never let the sows eat the afterbirth. After thirty-six hours the feed was increased until the sow was getting a little more than a pound a day for maintenance and from one-fourth to more than a pound a day for each pig she was suckling, depending on the age of the pigs. The pigs were weaned from ten to twelve weeks old.

I always had a veterinarian castrate the boars. I saw that he made the incision low, so that it would drain well, and that infection was kept out.

When I weaned the pigs I cut down the sow's feed. This tended to dry her up. I raised two litters a year. The first litters would be farrowed late in February or early March. The fall litters would be farrowed in September. In selling fat hogs I watched the market closely. The high prices came generally in the spring and early fall.

Serum Prevents Cholera

The diseases I had to contend with were measles, thumps, and scours. The hogs were all dipped once a month during the summer months. In the winter I sprinkled crude oil around in the hogs' quarters. I lost 31 young shoters in the feedlot with the measles as the result of one of the married hands' bringing two pigs with him when he moved into the tenant house. I hauled the dead hogs into the meadow, piled them on a part of a spoiled stack of hay, and burned them. Now anti-hog-cholera serum does away with cholera worries.

Before I had the hog rations worked out very well I was bothered quite a bit with the pigs' scouring. Watching the feeding of the sows and pigs as well as the hogs themselves generally kept the pigs clear of scours. Once in a while, though, I would have a bunch of pigs with the scours. One spring a dozen or more very promising young pigs lost their tails. The tail would get sore near the base, then get dry, and fall off. After that I watched the tails of the young pigs. If there were any signs of the trouble starting, the tails were greased with lard.

Letters From a June Bride

Betty Tells About the Wedding



DEAREST

SISTER: I am sitting by our library table, with Billy on the other side poring over the newspaper for all the world as if we had been

married for fifty long prosaic years instead of just five short romantic days. We have had a most happy evening. Billy has been telling me again about all his experiences while looking for a farm; of all the farms he visited in three different States; of his discouragement to find how different the realities so often were from the rosy-colored advertisement, and how he finally bought our farm.

I know how interested you are to hear all the details of the wedding. The ride from Springfield was neither as hot nor dusty as I expected. Billy was waiting for us at the station, and we flew into each others arms even though all the interested bystanders thought the situation very amusing. We had a nice breakfast at the hotel, after which Father left us to see about getting a livery horse to bring out Aunt Mary, whose train was not due until nine o'clock. Meantime Billy and I went to the courthouse to get the license.

The day was ideal, as rare as that June day we read about in our sixth reader, and the seven-mile drive to the farm was perfect, even though I did fail to take in the details which Billy so carefully pointed out—the wonderful new house on the top of the hill, the little corner store, and all the unmistakable signs of improvement.

You can imagine with what a thrill I caught the first glimpse of our little house. "There it is," Billy said excitedly, pointing in the direction of a clump of tall trees through which the house, all fresh and lovely with its new coat of white paint and dark green trimmings, was scarcely visible. "Isn't it just too lovely? And to think it is ours!"

We hitched Valley to an old apple tree outside the fence, and then Billy opened the yard gate, and together we walked into what he had assured me was a "real fairyland of beauty."

Both our mothers were waiting for us on the porch, with smiles and open-armed greetings, of which I have now only a confused impression.

Bride Feels Like Crying

Mother Mason, Billy, and I went into the house. Mother followed, calling us her "precious children," and for some unexplainable reason wiping her eyes with the corner of her spic-and-span apron. "You might suppose I was coming to my funeral instead of my wedding," I said, feeling very much as if I were going to cry myself. You simply cannot imagine how lovely the house looked in all its wedding finery. The minute I stepped into the hall I had the queerest feeling that I had been living here always. Everything seemed so absolutely homelike and natural, which I suppose was due to the fact that Billy had described everything so minutely in his letters. He had told me about the large, square, low-ceilinged rooms which opened on either side of the center hallway, with its wide steps and old-fashioned banisters, and the big open fireplaces, and had even drawn elaborate diagrams so I could know just where he had cut the door between the living-room and the kitchen, and where the new sink was to be, the china cupboard, and all the other little improvements.

Not only had all the woodwork been painted white, but he had also papered the whole house, except the hall, which was quite respectable in its sober green covering. He himself had selected the unfigured tan and brown for the dining- and sitting-rooms, and a cheerful blue and white check for the kitchen, with a more delicate pattern of blue dots for the bedroom.

The dainty scrim curtains which I had made had already been hung in the windows, and the house was literally full of roses which had been gathered fresh that morning—twenty-three different varieties, Mother said.

When I saw a buggy drive up the lane and Billy called up the stairs, "Hurry up, dear, that's the minister," I was no more excited than if it had been old Dr. Green stopping in on his way home

from meeting. I buttoned my white shoes deliberately, adjusted the long white petticoat, and had just given the finishing touches to my hair when Aunt Rachel, one of

the old black mammies of these parts, who had been called in to assist with the stuffing of the chickens and the freezing of the ice cream, etc., came into my room with a shimmer of lace over her arm, and the comment, "I done my bes', honey, considerin' that there's jes' one iron and no sign of a board."

It took only a moment to put this on. I ran down-stairs where Billy was waiting for me, his blue serge suit looking as if Aunt Rachel had had her hands on it too, and the stiff new collar and shoes looking as if they were causing real pain. "Don't kiss me or you'll muss my hair and dress," I warned him, but utterly regardless of this warning Billy took me in his arms and told me that I was "the very loveliest person in all the world."

It was just twenty-five minutes to twelve when Father and Aunt Mary drove down the lane. The train was late. By this time Mother Mason was ready, looking her sweetest in a black lace dress, and she took charge of the minister while Billy and I went out to gather an armful of my favorite yellow roses for me to carry.

Ceremony Begins at Noon

The service itself began just as our new mahogany clock was on the point of twelve, and was as simple and impressive as any I've ever heard. Rev. Wilson told us to stand up in front of the double windows, facing him, while Mother and Father, Aunt Mary and Mother Mason grouped themselves about the room, all standing, and Aunt Rachel and Ed poked their heads through the pantry door. There was a short prayer, and then followed the marriage service, which we had read over once only, so that it was not surprising that Billy, in his manlike eagerness to have it over with, mistook one of the impressive pauses for the end of the service and kissed me without so much as waiting to be formally pronounced man and wife. Then such congratulations, hand-shaking, and "God-bless-yous" that followed. I didn't know whether to laugh or to cry, so ended by doing a little of both, and was only too thankful when Aunt Rachel made the solemn announcement that "dinner am ready."

I'm sure neither Billy nor I ate much, although everything was delicious. Billy carved chicken like a past master, even though a kitchen knife and fork had to make up for the lack of a carving set, while I poured coffee at the other end of the table. I'm sure no one noticed the lack of vegetable dishes nor the abnormally long wait between courses.

As soon as dinner was over, everyone began talking about catching trains, and you might have supposed it was a matter of life and death to get them off at once. By four o'clock Mother, Father, Aunt Mary, and Mother Mason were all driving up the road, waving farewells as far as we could see, and behind them Aunt Rachel was trudging homeward, the remains of roast chicken and biscuits tucked under her arm. We were at last alone in our own home!

We have had the most wonderful honeymoon imaginable. We have gone through the orchard, counting the trees and trying to get an idea of how much of a crop we may expect this year. We have walked through the woods and talked ourselves into believing that we have a real fortune there. We have tramped over the pastures and talked of the time when we shall be grazing young steers at a profit. We have spent hours in the old-fashioned garden, pulling up weeds and clearing out the tangle of wild growth, and we have had picnic suppers on the wonderful building site where we are going to build a bungalow some day when the farm is all paid for and the needed improvements made. We're going to have to go very slowly these first years, live very simply, and save every penny. But we shall have as a home and a farm one of the loveliest spots in all the world.

Betty



Children's Corner

Dolly and the Ducklings

By Harry Whittier Frees

DOWN near the lower end of the meadow where the brook sparkled merrily in the sunshine lived four little ducklings in an old wooden shoe. In all the land of ducklings it would have been hard to find a happier family of little toddlers than Fluffy, Puffy, Ruffy, and Muff.

Fluffy was the oldest of the four little balls of down, and Muff the baby one. They were all very proud of their timid little sister, who never left home unless one of her brothers went along with her.

All day long they chased the bugs in the meadow, or went wading for pollywogs in the shallow waters of the brook. When evening came they all snuggled together in the toe of the old wooden shoe.

One day Fluffy started off by himself on a trip up the brook, and was gone quite a long time. When he returned he told of meeting old Daddy Frog, who lived under the lily pads at the upper edge of the meadow, and of the wonderful news he had told of a place further up the brook where the bugs were so plentiful that a whole army of little ducklings could never hope to eat them all.

"Wouldn't it be jolly," finished Fluffy with a little gurgle of delight, "if we could all go there and eat our fill of bugs?"

"Let's go to-morrow!" cried Puffy excitedly, cracking his two little bills together at the thought of such a glorious feast.

"Wouldn't it be nice!" agreed Ruffy at once. "And maybe we could find some pollywogs on the way up." For of all things Ruffy liked pollywogs the best.

But little Muff was not quite so sure that she wanted to go that far from home.

"Maybe something might catch us," she whispered to Fluffy as she cuddled closer to her big brother.

"You dear little goose!" laughed Fluffy. "How could anything hurt you when I am along?" And Fluffy drew himself up so bravely, and looked so big and strong, that little Muff's fears were at once overcome.

The next morning the four started away bright and early on their way up the brook. They crawled under the meadow fence and soon entered the strip of woods beyond.

For a long time they waddled along in silence. It was the first time any of



Lived in an old wooden shoe

them had ventured outside of the meadow fence, and everything seemed big and strange.

Finally little Muff, who had been bravely following after Fluffy, complained of being tired.

"We'll soon be there now," encouraged her big brother, "and just think of the feast we'll have!"

But all the time Fluffy was becoming more and more bewildered. The more he tried to choose the right path as told him by Daddy Frog, the more mixed up he got, until at last he stopped and faced his three little comrades.

"I guess we're lost," he told them, trying as hard as he could not to look scared.

"Oh! Oh!" wailed Muff, getting as close to the others as she could. "We'll never get back home, and I'll never see the old wooden shoe again."

Fluffy tried to comfort her, but all the time he felt like crying himself. It was anything but pleasant for four little ducklings to be lost in a big strange woods, and every moment expect something to jump out of the bushes and catch you.

And then all of a sudden they *did* hear something coming right toward them.

"It's a bear!" whispered Ruffy, nearly falling over with fright.

"Let's hide," suggested Fluffy, with a frightened glance behind him; and quick as a flash the four little balls of down had found a hiding place.

Fluffy and Muff crept under the protecting leaves of a big dandelion stalk, while Puffy and Ruffy scampered behind a large stone that completely hid them.

A moment later Fluffy's two little black eyes were peering anxiously forth from between the leaves of the dandelion stalk. And what do you suppose he saw?

Coming down the patch came the dearest and sweetest little dolly that ever came out of Dolly-land. She was carrying a basketful of flowers and was singing a song to herself:

"Three little dolls in a little wooden boat,

Out for a sail on the wide blue sea;
They sailed far away to Fairy-land Isle,
And then sailed home to mother and me."

As soon as Fluffy saw who it was he was not the least bit afraid, and jumped



Dolly takes the ducklings home

right out in front of the sweet little dolly.

"Hello!" he chirped in a happy little tone.

"Hello!" replied the dolly, who did not seem at all surprised to meet a little duckling all by himself in the midst of the woods. "And where are you going, my little duckling?" she asked.

"We're lost," explained Fluffy.

"I'll take you home to Mother," said the dolly, "and maybe she can tell us where you live."

So they all started off together with dolly in the lead, carrying Muff in her basket. The smallest duckling was so tired out that she could scarcely toddle along.

They soon arrived at the dolly's home, who at once told her mother all about meeting the little ducklings and how they had got lost.

And Fluffy, Puffy, Ruffy, and Muff nearly went wild with delight when dolly's mother told them she knew the very spot where they lived, and that after they had their supper Dolly would take them all home in her little cart.

The four little ducklings all had dinner out of the same bowl that Dolly set on the table. And Ruffy declared it tasted almost as good as pollywogs.

As soon as it was time to start back to the meadow the four little ducklings got into Dolly's cart, and she pulled them all the way home.

And when Fluffy, Puffy, Ruffy, and Muff had all thanked the kind-hearted dolly in turn, they all snuggled together in the toe of the old wooden shoe and went sound, sound asleep.

(Copyrighted by Harry Whittier Frees 1916)

New Puzzles

A Barrel of Pork

Jack Sprat and his wife together ate a barrel of fat pork in sixty days, whereas it would have taken him thirty weeks to perform the feat alone. We find that together they could consume a barrel of lean pork in eight weeks, although she alone could not dispose of it in forty weeks.

Now how long would it take both of them together to eat a barrel of mixed pork, half fat and half lean?

Answers to Puzzles

Puzzles Printed Last Issue

A Family of Twelve Sons

Jimson, Unison, Reason, Person, Poison, Treason, Season, Venison, Damson, Parson, Arson, Orison.



Housewife's Club

Vacuum Lunch Kit

By Esther Arnold

AFTER reading the stories of "best investments" which have lately appeared in FARM AND FIRESIDE, I feel I must say a few good words about the vacuum lunch kit which I bought last fall for my children's school lunches.

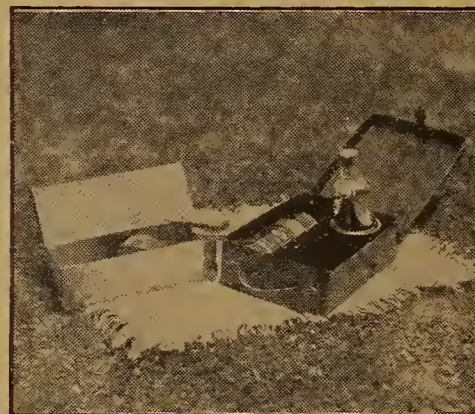
I had heard so much about the warm lunches served in city schools that I tried to get our directors to provide something similar. It is a mile and a half to our school, and my two daughters carry their lunch. But the directors plead "no money," though it was mostly lack of interest; so I got a vacuum lunch kit for them. Since then a number of others have done the same.

Our kit cost \$2.25, which is less than the price of a doctor's visit where we live, and the two children have the one lunch kit together. The price depends on the quality and the size.

As you will see from the picture, it contains a tin box for sandwiches and other things that are likely to dry out, a drinking cup, and a vacuum bottle holding a pint of liquid. I usually give them hot chocolate, though in cold weather they sometimes have coffee. In warm weather I fill it with cold drinks. Whatever is put in stays hot or cold.

My girls enjoy their lunches more, are in better health, and do better in their studies than when they carried their lunch in a common box.

We liked the small vacuum lunch kit so well that my husband bought a larger outfit for the men to use in the field. During the wheat harvest in June we bought four large vacuum bottles for the men to use in the fields. We paid \$2.50 apiece for the bottles.



Here is the small vacuum lunch kit

There was a scarcity of harvest hands in our neighborhood, but when it was noised around that the Arnolds were supplying their hands with vacuum bottles so they could have cold water and sometimes lemonade to drink, and served a delicious lunch from the vacuum lunch kit, during the afternoons, we didn't have any trouble in getting all the help we wanted. My husband feels we saved the cost of the larger vacuum lunch kit and the extra vacuum bottles several times because of the extra work the harvest hands did as a result of furnishing them with vacuum bottles.

We always take the vacuum lunch kit and the extra vacuum bottles on picnics or long trips in the automobile. This enables us to have both hot and cold drinks and a delicious lunch ready to serve any place.

Betty's Dressing Table

By Evelyn Turner

BETTY had been wanting a dressing table for her room, and decided she would not say a word about it, but make one. She busily set her brains to work, and this is what she made:

She went to a dry-goods store and bought a box three feet long, one and one-fourth feet wide, and two and one-half feet high, removed all the unnecessary nails and cleaned it thoroughly. The box was padded on top—that is, one side of the box, which is used as the top of the table—with several thicknesses of blotting paper, and the front and ends of the box were covered with a cretonne curtain. She chose blue-flowered cretonne, which harmonized with the color of her room. The blotting-paper pad was covered with a white cover.

The next thing needed was a mirror. An old one was used. The varnish was removed and painted with white enamel paint. This mirror was hung above, thus completing the dressing table.

The new piece of furniture was very much of a surprise to Betty's sisters.

Household Tests for Fabrics

By Eleanor Wilson

THERE are many housewives who always depend on the clerk's judgment on the quality of material when buying. She never realizes that there are a few simple tests which she could make at home and would prove economical.

Linen is a material which is rather difficult for some people to distinguish from cotton. The linen thread is firmly and smoothly twisted, breaks with a snap, is stronger than a cotton thread, but does not burn as quickly. These tests may be made by taking two or three warp threads (threads running crossways of material) of the material which is to be tested.

Cotton threads appear fuzzy. They are not as firmly twisted as linen; when thread is broken the ends are fuzzy and burn quickly. The oil test is a good way to distinguish between cotton and linen. Place a sample of the material to be tested on a piece of glass, apply some oil, let it stand for five minutes, and hold up to the light. If the sample appears transparent it is linen, otherwise it is cotton.

Artificial silk is often sold for true silk. The true silk thread is smooth, has a high luster, is tightly twisted, much stronger than the artificial, and when burned there is a small ball of ash left as a residue. Artificial silk is nothing but cotton. It has a high luster, and resembles true silk, but when tested it gives the same results as cotton does.

Woolen material is often sold for pure wool when one half or more of it is cotton. When testing a piece of material always test both warp and woof threads, because the material is apt to be wool one way and cotton the other. Take two threads of material, and burn. If an odor of burning hair is produced and a small ball of ashes appears on the end of the threads, it is wool. Make the same test with some woof threads. The thread or fiber is loosely woven and soft and fuzzy in appearance.

These tests are simple and can be made by anyone. When buying material it is best to ask for a sample, take it home, and perform these tests, in order to be sure that one is getting what he is buying.

Who Can Answer?

WILL someone please tell me how to put up cucumber dill pickles to keep all winter without sealing?

Mrs. A. K., Wisconsin.

WILL some of our readers who have had experience please write and tell us how and at what season to start a rubber tree? Mrs. C. G. of Michigan is very desirous of doing it correctly.

Fan Scallops



THIS is a design well suited to trim a towel, pillow case, sheet, dresser scarf, etc. The directions for making will be sent for four cents in stamps. Address your letter to Fancy-Work Editor, Farm and Fireside, Springfield, Ohio.

Cool, Comfortable Styles



SEND your name, address, and pattern number, legibly written, to Pattern Department, FARM AND FIRESIDE, Springfield, Ohio.

No. 2984 — Morning Jacket with Kimono Sleeves. 34 to 42 bust. Pattern, ten cents

No. 2985 — Plain Three-Piece Skirt, hand trimming, 24 to 32 waist. Width, two and three-quarter yards. Pattern, ten cents

No. 2984
No. 2985

No. 3081 — Middy Blouse in Norfolk Style. 12 to 18 years. The price of this pattern is ten cents

No. 2936

No. 3082 — Four-Piece Skirt with Pockets. 12 to 18 years. Price of pattern, ten cents

No. 3082
No. 3082
No. 3083
No. 2937

No. 2936 — Boy's Suit with Dickey. 4, 6, and 8 years. The price of this pattern is ten cents

No. 2937 — Shirt Waist with Pointed Front Closing. 34 to 44 bust. The price of this pattern is ten cents

No. 3088 — Adaptable Skirt in Three Styles. 22 to 36 waist. Pattern, ten cents

No. 2937
No. 2937
No. 3088
No. 3088
No. 3088

Copyright, 1916, by The Crowell Publishing Company

Recipes

OATMEAL COOKIES—One and one-half cupfuls of granulated sugar, one large cupful of shortening, one cupful of uncooked rolled oats, one cupful of dried currants, one cupful of sour milk, one level teaspoonful of soda, four cupfuls of flour, two eggs; flavor with vanilla. Mix dry ingredients, except soda, together. Work in shortening, beat eggs and put them in the milk, to which add the soda. Then mix with the dry ingredients. Drop in greased pan and bake.

To make the icing mix powdered sugar with milk until it makes a stiff paste, flavor with vanilla, and put on cookies. If chocolate icing is desired, add cocoa. K. W. E., Wyoming.

SALMON CROQUETTES—One pound or one can of salmon, one teaspoonful of salt, one tablespoonful of chopped parsley, juice of half a lemon, one cupful of cream, one tablespoonful of butter, three tablespoonfuls of flour, a dash of cayenne pepper. Chop salmon fine, add salt, parsley, lemon, and pepper. Mix thoroughly, put cream on to boil, rub flour and butter together, stir all into the boiling cream, cook two minutes, and turn out on a dish to cool. When cool, form into croquettes, roll in beaten egg, then in bread crumbs and fry in boiling fat. Serve on napkin, garnished with parsley. M. L., Nebraska.

SPICED RHUBARB—To two and one-half pounds of rhubarb, washed and cut in inch pieces, add one cupful of vinegar, two pounds of sugar, and a tablespoonful of mixed cinnamon and cloves. Put in a preserving kettle, and boil steadily for half an hour, then put in jelly glasses, covering with paraffin. S. E. H., Indiana.

CREAM OF TOMATO SOUP—One quart of tomatoes to which has been added two cupfuls of cold water. Bring to a boil. Put through sieve so as to remove all seeds and core. Salt and pepper to taste. In a dish make a thickening of four tablespoonfuls of flour and a little cold water. Add one cupful of sweet milk to the thickening. When the tomatoes are again brought to a boil add the thickening and butter the size of a walnut. Serve. E. L. K., New York.

FILLING FOR CREAM PIES—Yolks of three eggs, one large tablespoonful of cornstarch, three tablespoonfuls of sugar. Mix. Then add just a little cream and gradually pour in a pint of milk. Pour into a double boiler, and let boil until thick, stirring continually. Remove from stove, flavor with one teaspoonful of vanilla, and let cool. Hav-

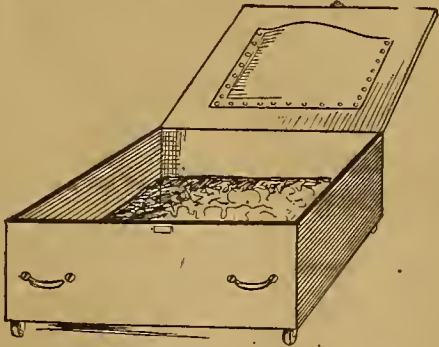
ing previously baked the shell in a deep pie pan, pour the filling in. Beat the three whites stiff, adding three-fourths cupful of sugar, and spread over the pies. Place in the oven for just a few minutes, until brown. This quantity makes enough for two pies. R. H., Colorado.

Household Hints



A SHEET OF ASBESTOS paper cut in pieces a foot square should be in every kitchen. If the cake is baking too fast on the top, cover it with a sheet of the paper; if too fast on the bottom, set a sheet under it. In making gravy, set a sheet of the paper under the frying pan if the flour is sticking to the bottom. In fact, the use of the asbestos paper makes a double boiler a luxury but not a necessity. LALIA M., Pennsylvania.

CHEST FOR BEDDING—Those having small bedrooms without closets in which to store extra necessary bedding may find this chest a help. Make a neat box, three inches larger each way than your comforts measure when quartered, and deep enough to hold as many as you think necessary. Make a lid which fits neatly over the top, and hinge it on.



Put casters under the four corners, and varnish or finish in any way preferred. Attach drawer pulls on the front, such as are used on dressers, and a fastener for the cover. Tack a neat cardboard pocket on the inside of the cover, using brass-headed tacks. In this pocket may be placed any surplus bedroom linen desired. Roll the chest under the bed and your bedding will be well cared for and handy when needed. MRS. C. S., Washington.

TO FLOUR RAISINS evenly and easily, clean, dry, and place in the flour sieve. Pour a cupful of flour over them and shake out the flour. MRS. F. S., Iowa.

Any time is the right time for a glass of

Coca-Cola

Morning, noon, or night—for a thirst-quencher, or just for a delicious healthful beverage—you will find a new pleasure in every refreshing glass.

THE COCA-COLA CO.
Atlanta, Ga.



9c Demand the genuine by full name—nicknames encourage substitution.

MAKE YOUR BIKE A MOTORCYCLE

at a small cost by using our Attachable outfit. FITS ANY BICYCLE. Easily attached. No special tools required. Write today for bargain list and free book describing the SHAW Bicycle Motor Attachment. Motorcycles, all makes, new and second-hand, \$35 and up.

FREE BOOK

SHAW MANUFACTURING CO.
Dept. 47, Galesburg, Kansas.



DAISY FLY KILLER

placed anywhere, attracts and kills all flies. Neat, clean, ornamental, convenient, cheap. Lasts all season. Made of metal, can't spill or tip over; will not soil or injure anything. Guaranteed effective. Sold by dealers, or 6 sent by express prepaid for \$1.

HAROLD SOMERS, 150 DeKalb Ave., Brooklyn, N. Y.



Gem City Business College
Quincy, Ill.
Established 1870
America's Greatest Commercial College

Take a business course or train for civil service, a secretaryship or for commercial teaching. Write for year book. Good positions waiting.

D. L. MUSSELMAN, Pres.
Lock Box 14 Quincy, Ill.

Keep Posted on the Mexican Situation

Follow the Armies in the European Conflict



HAMMOND'S MODERN ATLAS OF THE WORLD

Premium No. 958

There Never Was a Time When You Needed a World Atlas as You Do Now

Our New Modern Atlas of the World is needed in every American home. It contains many new and attractive features and is of especial interest at this time on account of the Mexican situation and the great conflict raging across the water.

A SPLENDID BIG HANDSOME BOOK

Nearly two hundred pages—size 10¼ x 13½ inches. Superbly illustrated and bound. It should have a place in YOUR home

Do not confuse this book with the so-called "Handy" Atlases. This is a big, handsome book, cloth bound, and contains maps in five colors of every country on earth, 128 pages of them, every State in the Union, the Canadian Provinces, the countries involved in the great World War, Mexico, showing the United States border; together with population gazetteers for the United States and the world. In short, the book is brim full of just the kind of information you want—to-day, to-morrow, every day. You need this book for yourself; you need it for your children. We advise you to take advantage of this splendid opportunity. Send your order now.

How You Can Get YOUR Copy

Simply clip the coupon to the right, fill in your name and address, enclose with \$1.00 cash, check or money order and we will send you a copy of the atlas all charges prepaid and also send FARM AND FIRESIDE for one year (old subscriptions extended). This offer positively expires in 30 days. Address

Farm and Fireside, Springfield, O.

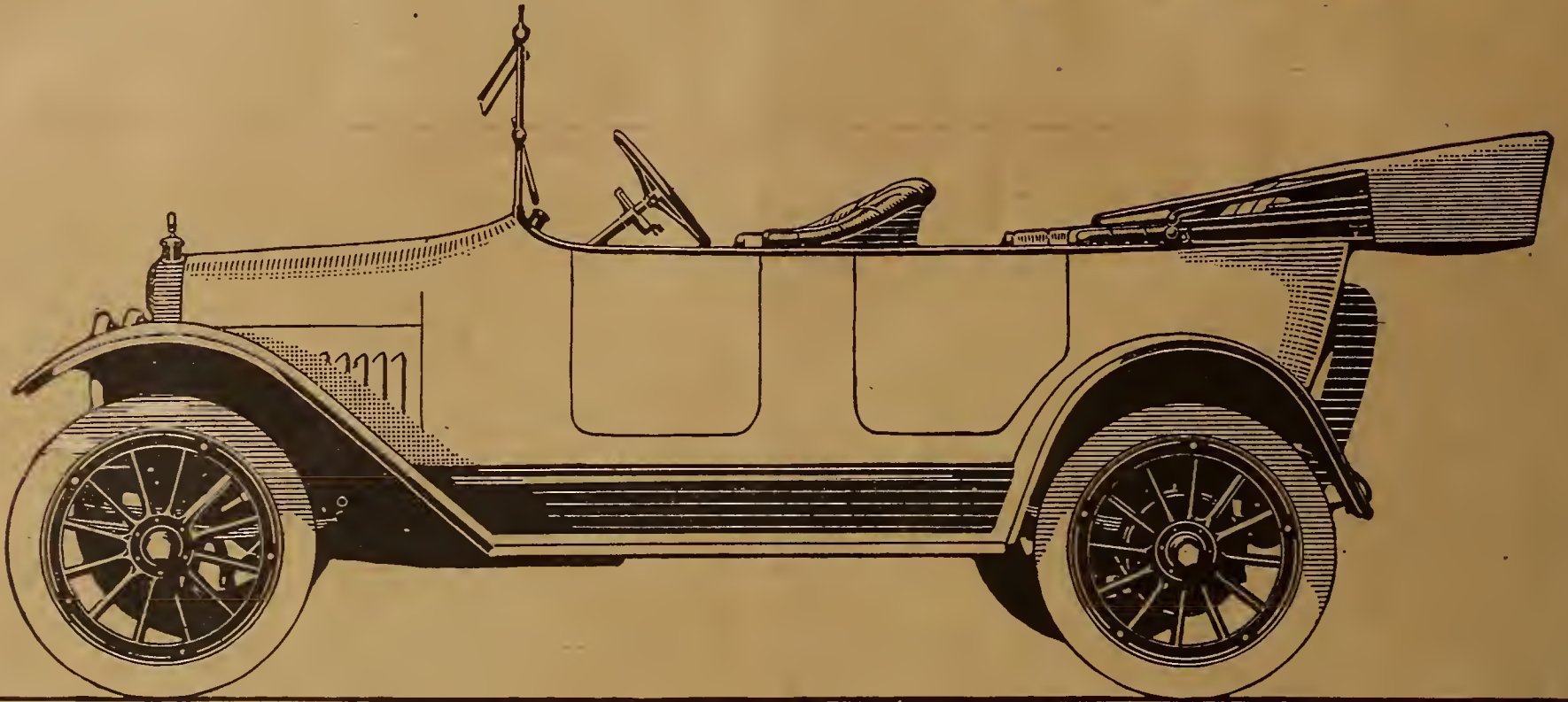
USE THIS FORM TO SEND YOUR ORDER

Send herewith \$1.00 for which send me (charges paid) one copy of the New Modern Atlas and also (optional) my subscription to FARM AND FIRESIDE for one year.

Name _____ P. O. _____ R. F. D. _____ or Street _____ State _____ F. & F. 7-16

Maxwell \$595

NEW PRICE



INCREASED PRODUCTION AND STANDARDIZED MANUFACTURING
PERMIT REMARKABLY LOW PRICE

THE prices of Maxwell Cars are again reduced—\$595 for the touring car and \$580 for the roadster—effective July 1, 1916.

Only the price is changed—not the car.

Greatly increased production reduces our manufacturing cost per car.

Standardized manufacturing—only one Maxwell chassis—makes possible further production economy.

By reducing the price we also reduce the selling expense.

Thus the Maxwell owner gets the most *actual intrinsic value* for his expenditure.

Bear in mind that the Maxwell is the World's Champion Endurance Car. Its genuine through-and-through merit has been established beyond question or doubt.

The Maxwell has lowered many records for gasoline and oil consumption. It is everywhere recognized as one of the most economical cars to maintain.

These facts, considered along with the remarkably low price now quoted, make the *Maxwell the one big automobile value of all time.*

This announcement will be read by hundreds of automobile dealers as well as prospective retail buyers. To those dealers who wish to know if there is any open territory, we will say that Maxwell sales contracts for 1916-17 are being signed now by our traveling salesmen. There will be some changes—particularly in the allotment of territory. Therefore, interested dealers, wherever located, should write us now.

WHAT THE MAXWELL PRICE INCLUDES

Long-stroke, high speed, four-cylinder motor; 20 to 25 miles to the gallon of gasoline (average).

Irreversible steering gear; automatic motor lubrication by splash and pump; 500 to 1,000 miles to gallon of oil.

Thermo-syphon cooling.

A running-in-oil clutch, so smooth as to make the driving of a novice as free from gear-clashing as that of a seasoned driver.

Tall, narrow, racing-type radiator, Maxwell-made.

Maxwell-made axles—I-beam front and semi-floating rear; heat-treated alloyed steel.

Gasoline tank in cowl; short, accessible gas line to carburetor.

Maxwell-made stream-line body, well finished in every detail. Deep, comfortable upholstery.

30 x 3½ tires all around, non-skid on rear; average life from 8,000 to 10,000 miles. Demountable rims.

Tire carrier at rear, with extra rim.

Substantial, Maxwell-made crowned fenders and linoleum-covered running boards.

Electric starter, electric lights, electric horn.

High-Tension Magneto, an independent source of ignition.

One-Man top with quick-adjustable, storm proof curtains.

Rain-vision, adjustable, ventilating windshield.

High-grade speedometer.

The Maxwell Touring Car is a *full five-passenger car*.

Every Maxwell model seats comfortably the number of passengers which it is rated to carry.

Compare these Maxwell features with those of cars selling at higher prices.

SEND FOR NEW CATALOG—This new book is different from the ordinary automobile catalog. It not only illustrates and describes Maxwell Cars but it also tells an interesting story about the Maxwell Institution. Just write (plainly) your name and address and send this clipping to Dept. G, Maxwell Motor Company, Detroit, Mich.

Name _____
Address _____
City and State _____

(G)

Maxwell

Motor Company • Detroit, Mich.

More Than 600,000 Copies Each Issue

LIBRARY

RECEIVED

AUG 2 1916

U. S. Department of Agriculture

FARM *and* FIRESIDE

The National Farm Paper - Twice a Month

ESTABLISHED 1877

5 cents a copy

Eastern Edition

Saturday, August 5, 1916



PHOTOGRAPH BY CLARENCE A. PURCHASE

Peaches!

Big Bargains in ROOFING

Siding—Ceiling—Wall Board—
Paints—Garages

Write at once for our Big Roofing Book illustrating and describing every kind of Sheet Metal Roofing and Building Material at Rock-Bottom Prices.

We are the largest manufacturers of Iron and Steel Roofing in the world. We sell direct to you—save you all middlemen's profits—and PAY the FREIGHT to your station. Get our low factory-to-consumer prices NOW!

EDWARDS' Reo Metal Shingles

Cost less, yet outwear three ordinary roofs. Absolutely proof against the elements. All joints and seams are water-tight, because the Edwards' Patented Interlocking Device makes them so. No warping, breaking or buckling. Nails are driven through holes which are covered by upper layer. This makes them permanently weather-proof.

Edwards' Exclusive Tightcote Process makes our products absolutely rust-proof. Not a pin point space of steel exposed to the weather.



Garage \$69.50 and up

Wide variety of styles, all sizes of Portable Fireproof, Metal Garages, \$69.50 and up. Lowest prices ever. Postcard brings Big Garage Catalog free.

Edwards Products Stand the Galvanizing Test

Take any other galvanized steel, bend it back and forth several times, hammer down each time, and you'll be able to flake off great scales of galvanizing. Apply this test to Edwards Galvanized Metal Roofing—you'll find no flaking.

FREE Roofing Book

quotes Rock-Bottom Factory Prices on Roofing, Siding, Ceiling, Wall-board, etc. Send for it. It's the highest offer ever made. Send coupon for Book No. 855.

Reo Metal Cluster Shingles

Spanish Metal Tile

Edwards Patent "Grip Lock"

Corrugated

FREE Samples & Roofing Book

The Edwards Manufacturing Co.
808-858 Pike Street
Cincinnati, Ohio
Please Send FREE samples. Freight-Paid Prices and World's Greatest Roofing Book No. 855.

NAME.....
ADDRESS.....

Hydraulic Cider Press Profits

Thirty years' experience enables us to give you all the information you need for cider making.

E. B. VAN ATTA & CO., 118 Penn Ave., Olean, N. Y.

Write for FREE Booklet Today
Also Boilers, Engines, Sawmills.

Rides Like An Auto

The New Patented Harvey Bolster Springs are made just like the finest automobile springs. They absorb all the bumps, jars and jerks of rough, uneven roads, and change an ordinary wagon into an easy-riding spring wagon. A set on your wagon will enable you to get your perishable produce to market in first class condition all ways. Insist on Harvey's. If your dealer can't supply you write us for free catalog and price list.

Harvey Spring Co., 729-17th St., Racine, Wis.

ASK our sales office nearest you for prices and terms on fertilizers adapted to your soil and crops.

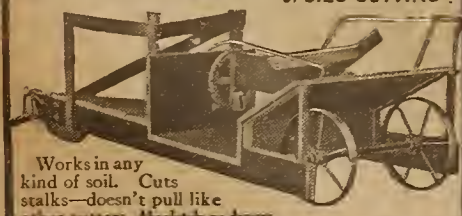
Send for Booklet—Free

The American Agricultural Chemical Co.

New York, Baltimore, Philadelphia, Buffalo, Cincinnati, Cleveland, Detroit, Boston, etc.

The PERFECT CORN HARVESTER

Sold Direct \$19.50 JUST the THING for SHOCK or SILO CUTTING



Works in any kind of soil. Cuts stalks—doesn't pull like other cutters. Absolutely no danger.

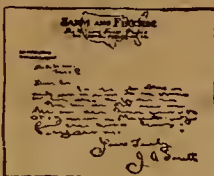
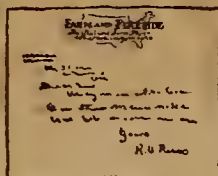
Cuts Four to Seven Acres a Day with one man and one horse. Here is what one farmer says: "Loudonville, Ohio, Dec. 4, 1915 Love Mfg. Co.: Dear Sirs: The 'Perfect' is all right. I wouldn't want to be without it for twice what it cost me. Some of our corn was very weedy, but the harvester did the work. Respectfully, Herman Fritz."

SOLD DIRECT TO THE FARMER
Send for booklet and circulars telling all about this labor-saving machine; also containing testimonials of many users. Send for this circular matter today.

LOVE MANUFACTURING COMPANY
Dept. 40 Lincoln, Illinois

The Editor's Letter

Incident, Fact, and Fancy—Here and There



I HAVE just lost a friend, and I want sympathy. In spite of the fact that this friend was deaf and mute, for this friend was a tree—a cherry tree—I have a very definite and deep feeling of loss, for this tree had endeared itself to me in a rather peculiar manner. It had great pluck, this tree, such as would have won rounds of applause if the same courage had been displayed by a human being. But let me tell the story:

When we first moved into our home this friendly cherry tree guarded a kitchen window from the heat of the summer sun. What is more, it always yielded a fine crop of fruit. But a blighting canker had already eaten deep into its trunk. Nearly half of the spreading branches had fallen away. The brave, scarred remnant was struggling hard to bridge the gap, but the task was too great. Nevertheless, for half a dozen years this unconquerable tree friend had been fighting for its life and yielding every year great loads of luscious fruit. The canker still consumed its remaining heart-wood until only a hand's breadth of living tissue remained. Last spring, though its end was near, this valiant cherry tree put out an unbelievable show of blossoms and matured—full twenty quarts on about one fourth the original treetop. When ready to pick, the mere weight of a ladder raised against this old veteran caused it to topple and fall prone, its great load of fruit still safe as it lay. As I plucked its last gift so convenient to my hands, the lesson of its life came with great directness: stricken as it was in its vigorous prime of life, with a canker that did not receive the necessary treatment, this tree wasted no time in idleness, but concentrated all its energy in trying to repair the damage, and steadily kept on year after year with its life-work. Even when disease had almost entirely girdled the trunk, its life juices were pumped all the harder through the remaining little strip of live tissue. Its last great load of fruit in size, flavor, and appearance was the equal of its bumper crops. Do you wonder that I feel as if I had lost a friend? These inanimate friends are all about us telling stories that we should heed.

Why should not we, of an order a little higher than trees, do equally well when physical misfortune befalls us? Fortunately, many are facing and conquering life's battles when robbed of bodily energy through influences beyond control. Singleness of purpose to accomplish something worth while is the best antidote for misfortune in either tree or man.

WHAT a revolution automobiles are causing in road-improvement work! Every live, pushing neighborhood is now dissatisfied unless it has good roads on which to roll to market, church, or for recreation. I motored over the roads of a community a few days ago where the dirt roads are like a boulevard. The same roads a half-dozen years ago, at the same time of the year, could be traveled only at a "jog trot" if safety to life and limb was considered. The soil of that particular locality is loose, deep prairie loam, and the secret of the excellent roads now enjoyed is new interest and constant attention to road upkeep throughout the community. When the road-improvement germ first got actively to work, community road meetings were held, and a decision was reached that good roads must replace bad roads without waiting longer for county, state, or national aid. When the frost first left the ground, graders were put to work at once, instead of waiting for dry weather. The early graded roads soon settled and baked into an almost rock-like surface. The slogan, "Keep the road drag going, bordering your own farm," was adopted, and every rut and inequality is dragged into good conformity before washing or cutting causes permanent injury to their roads. The owner of the car carrying me over these roads said: "Less than an hour a week working the road drag will keep the roads

as you see them, bordering my farm frontage of one hundred and sixty acres. This dragging can be done just before the fields are dry enough to work or the hay can be handled after a rain. Our roads handled in this way, and kept dragged and crowned throughout the season and until late in the fall, will not get nearly so muddy in the winter. We keep a water-shedding roof over them, and without the aid of a stone surface."

IT OFTEN requires a jolt to awaken us to a full appreciation of our blessings. This fact came forcibly to my attention in the Planter's Hotel, in a thriving little Mississippi River town not long ago. Two prosperous farmers and several traveling men and myself were waiting for dinner to be announced, when the landlord called up a local wholesale dealer and said: "I can't use the case of eggs you just sent over here. We have broken a dozen of them and can't find one fit to serve. You will have to take them back."

That conversation was not good advertising to the listening guests. The drummers looked resigned and helpless. The farmers showed much less enthusiasm for the expected summons to eat. To a person accustomed to fresh-laid eggs and garden truck, fruit and table supplies generally direct from his own premises, stale, wilted, or spoiled food set him to counting his farm blessings. It may be truthfully said in this connection that a meal of good quality, well cooked and appetizingly served, cannot now be secured for much less than a dollar at any reputable city hotel. This is not an unprofitable subject for the farmer and his family to ponder. Many a meal eaten with but slight appreciation in thousands of farm homes would cost the family five or six dollars at a sitting if eaten from the tables of a first-class city hotel, to say nothing of the tips that must not be neglected if future satisfaction is to be expected at the same table.

WHILE waiting for my train in Decatur, Illinois, some days ago, I sauntered around a square in the merchandising section of the city and identified the automobiles parked against the curb as I passed. Here is the list as I found them in their order: Two Allens, three Paiges, four Buicks, two Studebakers, one Davis, seven Fords, three Maxwells, one Cadillac, two Chandlers, three Hudsons, four Overlands, one Haynes. Practically all these machines had rolled in from farms surrounding the city. There were easily one hundred machines thus parked between eight and nine o'clock that morning in that little city of 30,000 inhabitants. To say that business in the stores and shops was brisk is putting it mildly. Ten o'clock doubtless found most of these farmers back at work.

As I paused at a street corner where half a dozen of those farmers were discussing the "wet and dry" situation, I thought it significant that they were a unit in favor of pressing the dry propaganda as a sound business practice. Said they: "Our equipment in high-priced land, expensive machinery, automobiles, and pure-bred stock is too valuable to risk in the hands of booze-drinking farm help, to say nothing of the future of our sons and daughters." After all, this big booze-fight throughout the country is merely a matter of considering safety first, whether the problem is being dealt with by railroad men, manufacturers, or farmers.

My travels during two weeks brought me in contact with a large number of farm owners and tenants in four States. One thing I found definitely agreed upon was that the last two years have given the automobile a place among the indispensable farm equipments on every good-sized farm where economy of time is being carefully considered. Many count a full hour more in bed every day as a result of quick runs to town for supplies several times a week.

The Editor

STRENGTH AND FOOD

The First Comes From the Last.

When proper food is used in sickness the recovery is much more rapid and sure; and a food that is good, and easy of digestion, is right for anyone.

A Pa. woman was taken down with nervous prostration and heart trouble and for weeks she could not find proper food.

She writes: "The medicine I took for my nerves and heart seemed to injure my stomach, and I grew steadily worse until I could retain nothing. For weeks I was kept alive on beef tea and lime water and after awhile I could not even continue that."

"I grew weaker and weaker until one day my daughter suggested that I try Grape-Nuts dry, as I could not retain anything moistened. After the third day I began to steadily mend and for weeks and months I ate them three times a day."

"When I began eating Grape-Nuts I weighed only 75 pounds; now I weigh 110 and am doing my housework and eating nearly any and everything. I tell everyone I hear complain of poor stomach to try Grape-Nuts, and many have on the strength of what the food has done for me." "There's a Reason." Name given by Postum Co., Battle Creek, Mich.

Ever read the above letter? A new one appears from time to time. They are genuine, true, and full of human interest.

WRITE FOR BROWN FENCE BARGAIN BOOK AND SAMPLE

Over 25,000 rods Brown Fence already sold to 400,000 farmers. Factory Prices. Freight Prepaid. 150 styles. 13c per rod up. Gates and Steel Posts, too! Write postal.

THE BROWN FENCE & WIRE CO.
Dept. 21E Cleveland, Ohio

The BALL Lightning CELERY BLEACHER

Most perfect method ever invented. No banking with soil. Cheaper than boards or strips of roofing paper. Bleaches quicker and makes a more beautiful product. Big money and labor saver for the market grower. Handy, neat and equally good for the private gardener. Used and endorsed by all the leading Agricultural Colleges in the U. S. A.

Write for FREE SAMPLE OF BLEACHER and a copy of my NEW BOOK describing this and several other wonderful inventions for the garden.

THE BALL MFG CO., Dept. H, Glenside, Penna.

YOUR SEED DEALER RECOMMENDS THE STANDARD INOCULATION

FARMOGERM

He knows it Means Crop Insurance for Alfalfa, Vetch, Clover, and all other legumes. Bigger and richer crops for less money and labor.

Ask him about it or write to us. Dept. 75 for "The Legume Grower"

EARP-THOMAS FARMOGERM CO.
Bloomfield, N. J.

CASH COMMISSION AND SALARY, TOO

Liberal commissions and salary will be paid by FARM AND FIRESIDE during the next three months. This is the biggest money-making proposition ever made by a Farm Journal. A fine opportunity for energetic young men. Experience not necessary. You must act at once.

Circulation Manager
FARM AND FIRESIDE, Springfield, Ohio

FREE My Big New Buggy Book

SPLIT HICKORY

Just drop me a postal and I will mail you my big new catalog showing 150 stunning styles of Split Hickory Vehicles. Famous for beauty, lightness, strength, and long service. I give

30 Days' FREE Test and 2 years' guarantee. Now I have split the price to save you \$20 to \$40 on your new rig. Catalog explains how. Write for my free book today. Address **THE OHIO CARRIAGE MFG. CO.** H. C. Phelps, Pres., Station 44, Columbus, Ohio

Catalog shows 150 other styles **\$39.25 UP** from

Turn Apple Waste to PROFIT

Cider Making Will Pay Someone in Your Section Handsomely.

Will It Be You?

Start a paying business that grows almost without effort.

Thousands are making big money turning apple waste into profits for their neighbors by making Good Marketable Cider from windfalls, culls, undergrades, etc., on

Mount Gilead Hydraulic Cider Presses

Sizes 10 to 400 bbls. daily. We also make cider evaporators, apple butter cookers, vinegar generators, filters, etc. All machinery is fully guaranteed. All power presses have steel beams and sills. Write today for catalog.

HYDRAULIC PRESS MFG. CO.
106 Lincoln Ave. Mount Gilead, O.
Or Room 119-D, Cortlandt St., New York, N. Y.

FARM *and* FIRESIDE

Published Twice a Month by THE CROWELL PUBLISHING COMPANY, Springfield, Ohio

Copyright 1916 by The Crowell Publishing Company

Vol. 39

Springfield, Ohio, Saturday, August 5, 1916

No. 22

Developing the Selling End

When You Grow Two Blades and Get What They Are Worth

By B. F. W. THORPE



Seven miles to market, unload to grocers, home again 100 minutes after leaving farm

necessary transportation and distribution expense is reduced to its lowest terms.

My journey brought me in touch with growers of garden truck, potatoes, orchard fruit, poultry, hot-house lambs, veal, pork, and various lesser products. In every case I sought to find the comparative proportion of net profit left to the producer after marketing by the different methods. Experiences of producers were of course found variable, but the net profit in the great majority of cases was strongly in favor of near-by points of marketing. Most of the exceptions were cases where a special trade had been established with individuals, institutions, or firms at a distance where especially high-grade products commanded a nice premium over commercial market prices. Another fact brought out by this study of marketing was that the new and successful plan of selling to near-by consumers is quite different from the practice of selling to local consumers, even a few years ago.

Divide Products in Three Grades

NOW the central idea is to raise the grade to a high quality and separate the fancy stuff from that which is lower in quality. In fact, make two and sometimes three grades in most kinds of small fruits, garden truck, potatoes, eggs, orchard fruits, etc. Along this same line of marketing improvement is the present growing practice of taking systematic steps to find regular customers in towns and cities within easy and quick shipping distances. One of these plans is to take samples of the products that can be supplied at stated intervals regularly, interview prospective customers personally, such as high-class retail grocers, hotels, restaurants, bakeries, sanitariums, asylums, private schools, and wealthy families. The samples carried are made attractive in grading and cleanliness as well as in neatness of the wrapper or container. A strong and comprehensive guarantee is an essential part of making these contract sales.

The other plan of securing private customers is to get a list of names and addresses from prospective customers from towns and cities that can be conveniently supplied by parcel post, express, or freight. Then send small samples of goods that will be attractive in appearance and container as well. The samples should be accompanied with a convincing letter giving just the information the prospective customer will be most interested to learn about. Of these two plans the first described will be most effective in landing customers, providing the farmer or gardener has the knack of making a good impression. But the small attractive sample of high-quality produce find-



Much truck now unloads direct to huckster's wagon, only one middleman profiting

THE vexing question that has disturbed the farmer and the consumer of his products alike for a generation and more is how to lessen the extravagant cost of distribution. It was only when necessity became a spur that some progress became apparent. Now there are movements systematically under way which promise to put the marketing of farm products on a more reasonable and economic basis.

I am well convinced we should give more thought to this selling end of our farming business, whether 10 acres or 200 acres are operated. When all our energy is used in making two blades grow instead of one, and then selling the two blades at cost, how are we getting ahead? We have now come to the place where selling well is more important than piling up production.

During a recent journey through several States, with frequent stops en route, I gave as much spare time as possible to making a study of just what is being done along the lines of better marketing. I found that this matter is now getting the attention among farmers that it never before has received, and the problem is being worked from several different angles with some measure of success.

Easily the first and most important development in marketing is the growing belief in the importance of first taking fullest advantage of all home markets. It is true that there are many farming districts where local consumers can use only a small fraction of the crops produced locally. It is just as true that thousands of towns and cities are now being supplied with produce shipped from distant points, and home-grown products are being shipped to markets hundreds of miles away and sold to distributors by commission houses. This is one of the biggest economic blunders connected with farm business to-day. We may speed up our methods of production as we will, and wear nerves and anatomy to a frazzle, and still the balance is found to be on the wrong side of our ledger until this un-



Produce ready for auction selling under direction of New York State Department of Foods and Markets, New York City. This new aid to marketing bids fair to revolutionize produce-selling

ing its way into the kitchen or office will also have its strong appeal when guaranteed.

But whatever plan is used for getting customers, continued success cannot be expected unless quality, neatness, and promptness of delivery are constantly followed out according to the terms of agreement. Undoubtedly the cause of the poorest success when making use of either of these plans of marketing is failure in being able to furnish the customer produce at the regular intervals according to contract. The temptation is strong to piece out shortages of home-produced material with supplies secured from neighbors. This is sure to lead to lack of uniformity in appearance, and loss of good customers.

The experience of two poultrymen with whom I had conversation in Missouri towns bear on this phase of marketing. One poultryman secured customers to take his fancy grade of eggs from his flock of 175 layers, also broilers and roasters. His contracts were made when his egg production was greatest. When the season of less production arrived, he

substituted eggs secured from neighbors, and soon lost many of his best customers. He then increased his flock of pure-bred layers, but it was slow work getting back the confidence of his former customers.

Another egg farmer with 1,000 layers worked out a plan of supplying from 100 to 200 baby chicks of his own pure-bred stock to about a dozen of his neighbors, supplying that number of chicks to each family every spring. In the contract it was agreed that no other breed of chickens should be kept on any farm where the pure-bred chickens were established, and also that no male birds should be kept on their farms. The eggs from these 1,000 or more hens in the neighborhood flocks were bought at a stipulated price and collected three times a week, and were used to help supply his special egg and poultry trade. This plan is proving more satisfactory than carrying a stock of several thousand hens on his own farm.

Another phase of home marketing now developing in [CONTINUED ON PAGE 18]

Marketing by Parcel Post

When You Let Uncle Sam Help You Sell Your Products

By MILLARD SANDERS

FRESH EGGS

Send \$1 and I will ship to you 3 dozen Strictly Fresh Eggs, post-paid. Eggs will reach you the next day after your money is received.

HENRY MYERS

HONEY

White Clover Honey

Twelve pound can for \$1.50; 5 pounds American cheese for \$1.25, postpaid.

HENRY MYERS

This copy can be set in display type or used as want ads

THE factories and houses in the outskirts of Chicago were rapidly disappearing from view. Most of us in the smoking car were reading the morning papers we had bought on the way to the train. The newspapers were filled with articles telling about the remarkable growth and great activity of the nation's industries for the first half of 1916, and the bright prospects for the rest of the year.

They sat in the double seat in front of me. I had met them on the live-stock market the day before. Two of them were past forty-five; the other two were approaching forty. All were prosperous. Stevenson had topped the market the day before with two carloads of fat steers. Ashley and Howell had shared honors in getting the top price on two cars of hogs apiece, two days before. Enns, who is a sheep feeder and made a lot of money feeding lambs last winter, had visited the market just to see what was going on.

"Listen here, men," requested Enns, "while I read you something interesting." The other three stockmen looked up from their papers while Enns read this excerpt: "More than one hundred million dollars' worth of merchandise was sold by mail by one Chicago firm last year. If they continue the pace for the rest of the year that they have made for the first half of 1916, they will exceed their 1915 sales by several million dollars."

Use Mail-Order Firms' Methods

"THERE is a big lesson for us farmers to learn from the mail-order concerns," commented Enns. "They know where to buy merchandise at a reasonable price, and, what is more important, they know how to sell it. Selling such a large amount of things by mail in 1915 and the first of 1916 wasn't an accident. These people did it by studying the needs of farmers, using order-pulling advertisements in farm papers, by filling orders promptly, and by giving good values."

"While the marketing problems of farmers differ from those of the mail-order houses," continued Enns, "the same business principles that made the mail-order firm a winner apply to our business. We farmers aren't worrying as much about production as we are about selling what we raise. We are not worrying now about marketing our sheep, or hogs, or cattle with the stuff worth around 10 and 11 cents. We are not losing any sleep over the price of corn, or wheat, or alfalfa—except those of us who will have to buy grain and hay to finish out our feeding operations next winter."

"But how about the vegetables, the eggs, the chickens, the butter, the honey, the cheese, the apples, the peaches, the grapes, and other products that are ready for the market right this minute or will be in the next thirty to sixty days?"

"All of us here have been farming for a long time," concluded Enns, "and we think we are pretty smart, and we are when it comes to handling stock, but we aren't doing a very good job of selling the things that are by-products on our farms. I have tried to convince myself that my live-stock operations were so large that I did not have time to fool with the little things. But my wife talked all of that nonsense out of my head. She says, why depend on sheep or any one feeding operation or crop for a living when we can do other things as well?"

This discussion of selling farm products by mail had attracted a lot of attention. Other farmers and

stockmen in the car as well as the traveling salesmen had dropped their papers and with me were drinking in every word.

"I used to think there wasn't as much in this mail-order selling for us," broke in Stevenson, "as farm papers have tried to make us think. I have changed my mind. What is bothering me, though, is how we are going to go about it. I have yet to read an article that really tells a person how to sell farm products by mail. They tell how to put vegetables in a basket, chickens in a pasteboard box, or eggs in a crate; and they show pictures of four pounds of butter in a carton, fourteen dressed chickens hanging head down, two dozen fresh eggs, or a basket of vegetables. Then they tell you to advertise, and the orders will come flocking in."

Ashley then told his seat-mates that he thought his hog operations were large enough, so that it wouldn't pay him to divide his interests with other products. "Too many irons in the fire is a bad thing," he said. "But I believe that the person who is raising several different products each on a more or less small scale can make a lot more money by selling the stuff by parcel post. Howell, the other hog man, disagreed with him about depending on one product for a living."

"What I want to know," interrupted Stevenson, "is how to write the advertisements to get the orders, where to place the advertisements to bring in the orders, what line of talk to use in the letters I write to prospective customers, how to get reorders, and something about the rules, regulations, and limitations of parcel post."

"One of my neighbors put an advertisement in the want ad section of one of the Chicago daily papers, telling about a bunch of milk-fed chickens he wanted to sell. He got a bunch of orders. Many of the chickens he mailed arrived at their destination in bad shape. The purchasers returned them. He immediately wrote to find out what the trouble was. The chickens had arrived in Chicago too late to be delivered the same day. As that day was Saturday they had not been delivered until Monday. He is going to try again when the weather gets cooler."

At this point I entered the conversation. I told them about a man in northeast Kansas who sells all of the crop from a 100-acre apple orchard by parcel post. He makes cider of all of the apples he can't sell for \$1 a bushel. The freshly pressed apple juice is heated to 160 degrees Fahrenheit, and put into clean, scalded barrels. The barrels are sealed to prevent ferment bacteria finding their way into the cider. When this orchardist desires to sell the cider it is drawn off from the barrels, heated to 160 degrees for half an hour, and bottled in quart bottles. Most of the cider is sold in pasteboard cartons which hold six quart bottles. Each bottle is wrapped in paper. This prevents them from striking against one another and breaking.

Even though this Kansas apple grower has 100 acres of bearing apple orchard, he doesn't worry

about a market. He uses display advertising in his county papers and in those of adjoining counties. This advertising campaign is backed up with personal letters sent to a selected list of names. The advertisements and letters tell about the good qualities of the cider: how refreshing it is, how it is made, how healthful it is to drink, the care used in getting it pure and wholesome to the consumer, and the price.

Then a Michigan farmer, who was on his way to New York State to buy some pure-bred dairy cattle, told how one of his friends marketed his celery crop by mail. This celery grower uses want ads in the Chicago papers. Here is a sample of his ads: "Kalamazoo Celery—One dozen large, tender stalks of Golden Heart Self-bleached celery, delivered by Uncle Sam for 65 cents. Sam Stewart." This ad costs several cents a word, depending on the number of times it is run.

"Let us analyze this little ad," said Stevenson, "to see if we can satisfy our own minds why it pulled the orders."

Why Advertisements Pull Orders

SO ALL of us tore the wording of the little ad apart to see what it contained that obtained the orders. First, there was something attractive for city people, we thought, in the name of Kalamazoo Celery. Of course every farmer couldn't use Kalamazoo, but he could use a name just as attractive. Second, the ad told that there were a dozen stalks in the bundle, and that the stalks were large, tender, and self-bleached. We all decided the attractive name and mouth-watering description would create a desire for the celery. Third, the sale was made when the prospective customer was told that it would be delivered by Uncle Sam, and that the price was only 65 cents a bunch.

Then I told Stevenson and the other men that the editors of FARM AND FIRESIDE at Springfield, Ohio, would gladly answer any questions about selling farm products by parcel post, how to write the ads,

what to put in the letters, where to buy pasteboard boxes and containers to mail things in, and the rules and regulations, etc., of parcel post. They will do the same for every subscriber of FARM AND FIRESIDE.

A traveling salesman then told us about an Indiana farmer who is selling butter and eggs by mail. He said that it sometimes cost his friend 50 cents to get a customer, but that reorders soon cut down the expense of the first advertising. According to the traveling man this Indiana business farmer could afford to pay as much as \$1 apiece to get customers. In other words, he could afford to pay \$6 for an ad that only brought six orders if he could keep the trade of those six persons.

Then an Illinois farmer told this parcel-post experience: "A neighbor of mine has been selling successfully

chickens and sausages by mail for nearly a year. He believes that any person can sell products by mail successfully if he lives within 150 miles of a good-sized town. At first he used a selected list of names without success. Then he tried want ads in the city papers. He got a number of replies. His first orders cost him 40 cents apiece. He felt he was paying 40 cents apiece for permanent customers. He told in his ads how his chickens were milk-fed in wire-bottomed coops so that the chickens didn't eat or stand in filth; that the chickens weren't killed until the order was received; that they would be wrapped in waxed paper to retain all the moisture and flavor of the bird;

and that the customer would receive them the next day after the order was received. The price quoted was very reasonable. Then followed a description of the sausage made from milk-fed little pigs in clean pens, slaughtered in sanitary houses, free from dust, etc."

When I returned home I was talking with one of my neighbors about the possibilities of selling farm products by mail. He told of a friend of his who has been selling honey, cheese, and eggs in Wisconsin for some time with a great deal of success. He said it was possible for one to sell stuff the year around and have money coming in every day.

Mr. Myers had a difficult time getting started with his parcel-post business. At first he spent \$27 for circular letters which he mailed to a list of names selected from a city telephone directory. He received \$3 worth of orders. He was very much discouraged. Then he placed a want ad in a city paper. The ad ran a week. It cost him \$6. He received \$20 worth of orders. Mr. Myers says he has to run his ads three times a week at least, to keep his products moving. Because old customers move away or are attracted by some other farmer's products, it is necessary to get new customers all the time.

EW

Kalamazoo Celery

One dozen large, tender stalks of Golden Heart Self-bleached celery, delivered by Uncle Sam for . . . **65c**

SAM STEWART

CHERRIES

Late Marency; fancy; no worms; 16-quart crate delivered by parcel post for . . . **\$1.75**

TOM JONES

Here are two short and specific order-pulling advertisements

BUTTER AND EGGS

Now is the time to buy your eggs direct from the country, as eggs lying around in the stores do not keep fresh during hot weather. My prices are as follows:

3-dozen package . . . 30c a dozen
6-dozen package . . . 28c a dozen
8 to 12 dozen package 26c a dozen
30-dozen package . . 24c a dozen

Fresh creamery butter direct from churn to you, never more than 24 hours old, at 30c a pound with egg orders. All orders filled promptly. Butter and eggs guaranteed to give satisfaction.

RALPH SWALLER

This advertisement can be used very effectively in small daily papers. In large city papers it should be set as a want ad

Trucks and Trailers

Signs of the Times in Rapid Country Hauling

By D. S. BURCH

GOING to town a few days ago I passed a light automobile going the other way. It was traveling about 25 miles an hour, and behind it was a trailer carrying a new mower. "That looks like real business," my companion remarked. "There is a man who values his time. Why, he's been ten miles to town to get that mower, and he'll be home and ready to use it before the dew is off the grass."

Reaching town I mentioned the incident to an ex-blacksmith who has worked at the forge for over twenty years. "Farmers are more interested in hauling than some folks think," he said, "but they want someone else to do the experimenting. They didn't buy automobiles until they watched the city man, to see what kind of luck he had. Now farmers are the biggest buyers of motor cars."

"It's going to be the same way with the motor-truck business," he went on. "The average farmer can't see how it is going to pay him, but let me tell you that he has more use for a truck than he has for an automobile. As it is, he makes a dray out of his car, and it's only a little time till his car looks like a dray."

"The people who are using the automobile trucks and trailers now," he proceeded, "are contractors, painters, plumbers, and carpenters. They load them up with ladders, lumber, cement, and even a whole gang of men. Now, anyone who is posted on motor transportation knows that you can make one five-mile haul for less than you can make five one-mile hauls. Stopping and starting is expensive. So if a truck pays contractors who make short hauls around town, it ought to pay any farmer who lives near good roads and who has considerable hauling to do."

I couldn't see any flaw in his reasoning except perhaps that the class of men he mentioned made a bigger margin of profit than farmers. But he was ready for that point.

"It's the contractor who is still using horses for his hauling," he replied, "that is letting the business slip away from him. The fellow with the truck can underbid him and do the work quicker. The big contractors nearly all have trucks, which is proof that it pays now, and the only thing that is holding the little fellow back is lack of capital to get one."

I went around the corner to a wagon-maker to see what he had to say about it. I hadn't been in the shop for a long time. It still had the old name of "Wagon Works," but I didn't see any wagons around. The real shock came when I went inside. He was making trailers, and was enthusiastic about them.

"Why, right out here in the country a little way," he said in answer to my question about his new lines, "there's a produce man who has a route through the country. It's about 100 miles around the route, and he makes it winter and summer, gathering up eggs, chickens, and all sorts of produce. He has a motor truck with one of our trailers hitched on behind. He carries two tons on the truck and a ton and a half on the trailer."

Trucks Simplify Hauling Problems

THESE men and others who are well informed on hauling problems believe that farms are just beginning to be motorized. One of the most bitter fights against motor vehicles has been made by firemen. I have known firemen to quit the force because their horses were taken away and they were given motor engines. They said that snow would stall the trucks, and predicted break-downs on the way to the fires. But time has shown them to be faster, more re-

liable, and cheaper to use than fire horses.

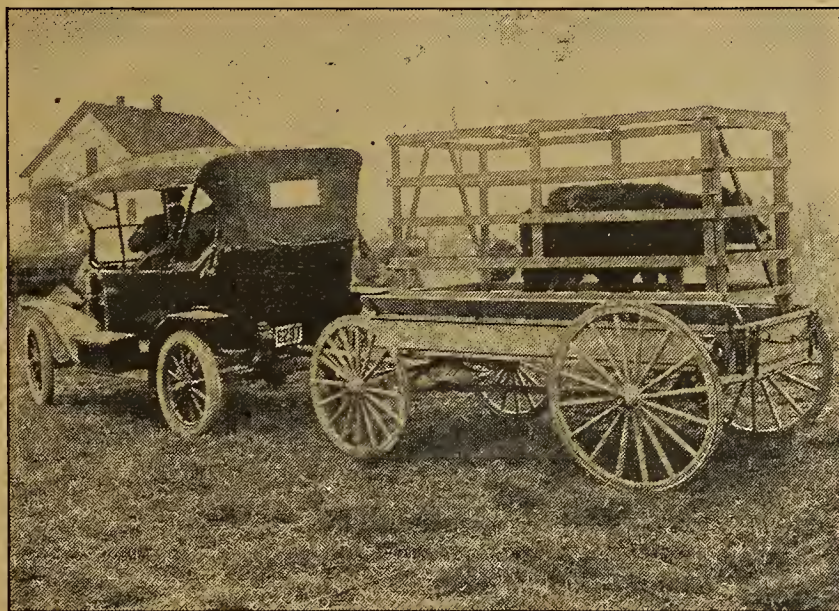
Trailers are more recent, of course, than trucks. Some automobile men have discouraged their use on the grounds that motor cars are designed to carry rather than to pull. But when it was found that a light automobile could easily haul a trailer loaded with five 22-foot telephone posts, that a drawbar pull of 50 pounds would easily haul half a ton on average roads, and that this figure could be reduced by using roller bearings, the manufacturers of trailers began in earnest.

The two-wheel trailer appeared first, but was quickly followed by the four-wheeled type. "We used to see about as many two-wheeled trailers as four-wheelers," one manufacturer explained, "but now the preference for farm use is about twenty-five to one in favor of the four-wheelers which we recommend. It will cling to the road better and travel safely at high speeds. We have tested our trailers under full load at 42 miles an hour on good roads."

This man was unusually optimistic, but these are his reasons: The trailers are built low down and on automobile lines. They have hub caps and special axles requiring grease only every thousand miles, and have a double-spring buffer in the drawbar to



The market gardener who owns this truck goes to town and back in five hours. It took nine with horses



A trailer enables you to use the automobile for light hauling and yet keep it in good condition for pleasure

prevent the jars present in starting and stopping.

The truck and trailer are logical outgrowths from the automobile. The man who is accustomed to motoring to town and back in an hour will not be satisfied with spending half a day on the same trip clucking at a team of horses. One inexpensive half-ton truck is designed with standard automobile parts. The carburetor, magneto, spark plug, tires, and other parts likely to need replacement or repairs are the same as are used in standard makes of automobiles, and can be secured at any garage.

The cost of motor hauling is a matter on which reliable figures are scarce, but up to distances of 75 miles trucks seem to be cheaper than train service. A ton truck will go from eight to twelve miles on a gallon of gasoline under average conditions.

One substantial truck has power on all four wheels, steers with all the wheels, and also has brakes on all

the wheels. It will travel readily over plowed ground, and through mud and snow up to the axles. Motor trucks cost from about \$750 up to several thousand dollars, and trailers are priced at sixty dollars up to several hundred, the price depending on quality and size.

In general the tendency is toward bigger capacity. A truck designer who has grown up with the business says that it is a common practice for a customer to invest in a small truck and then take it around to a wagon shop and have a bigger body put on. "We have to make allowance for about 35 per cent overload," he explained, "but folks would get better results if they would tell us frankly how much they expect to carry. They think they save money, but overloading is as bad a practice with machinery as it is with horses."

Some trailers can be used with thills as a handy farm cart or pony wagon. An automobile with trailer attached is handled just like any automobile except that more care is required in backing.

The devices for converting an automobile into a ton truck are also good things, especially if you can get a car whose body is about worn out but whose engine is still good. In such cases the total investment may run as low as six or seven hundred dollars.

Thus there are many ways of motorizing the market end of the farm and speeding up the regular work. If this account appears too rosy, it is because I have not been able to find anyone who can find any serious fault with either trucks or trailers for farm use. They look like two of the best friends a farmer can have.

EDITORIAL NOTE: For further information concerning trucks and trailers, address the Machinery Editor, FARM AND FIRESIDE, Springfield, Ohio. Questions will be answered by personal letter.

Finding Buyers

How an Ohio Man Sells Onions

By R. E. ROGERS

THE job of raising and harvesting most farm produce always requires a certain amount of planning and brains. But the job of selling is where most of us fall short, and the peculiar thing about it is that we usually know it. We pay the price the dealer asks for what we buy and take the prices the dealer offers us when we sell.

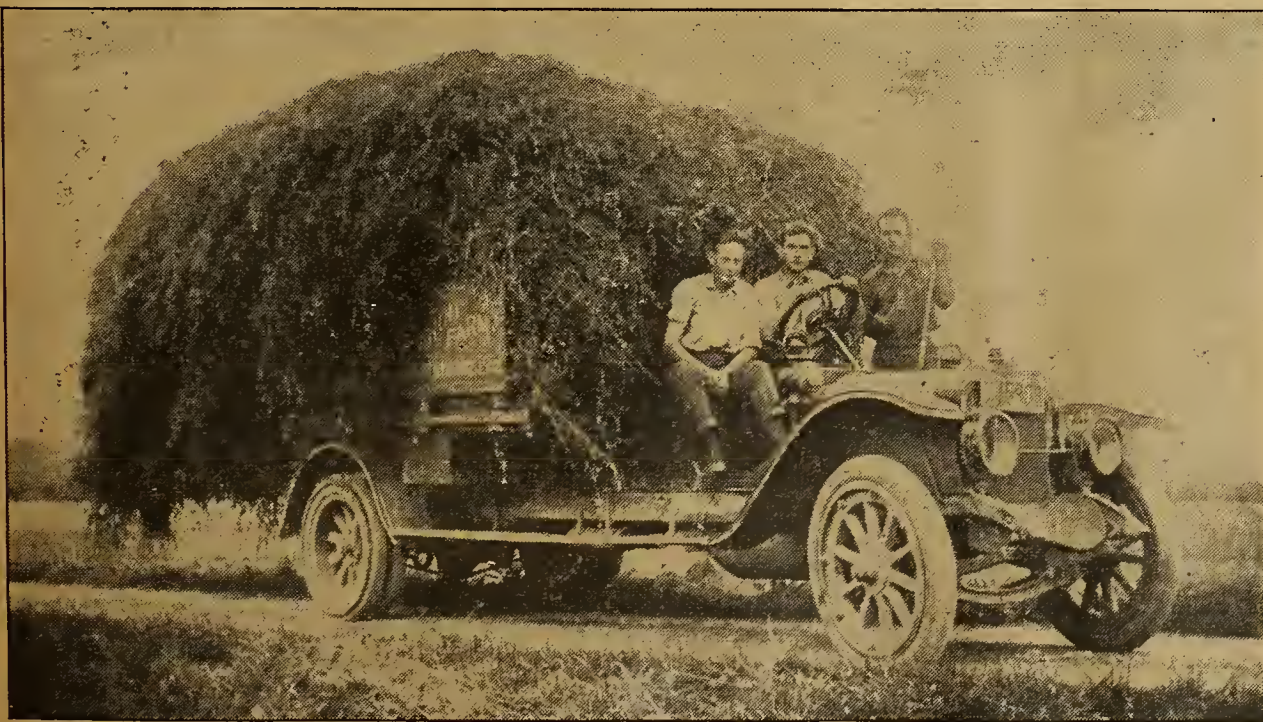
Our particular line of farming runs to vegetables and small fruits. Of the vegetables we sell more onions than any other thing. For a year or so after we started this crop we had to deal with commission men in Toledo, Cleveland, and Pittsburgh when we had a surplus. Since our local market seldom used more than 500 bushels in the year we usually had a surplus. So the plan of discovering a market for this crop and others whereby we could sell direct to the grocer or user of the produce occurred to us.

It so happened at this time that a coal miner from the southern part of Ohio moved in our neighborhood and was able to suggest names of men located in the thickly populated mining districts of Ohio who were absolutely straight in their dealing and who bought large amounts of farm products.

Correspondence was started, and 200 bushels were sold the first trip. Many satisfactory deals were made after this. Even this year this man telegraphed us for a car.

There are several advantages in such a deal. We usually ship the onions sacked. He sells to the trade, and is able to keep these empty sacks for us and return a couple hundred sacks after a few weeks at a freight expense of 25 cents. Since sacking costs us about three cents a bushel, it pays to look after this. Having a store of his own, there is no drayage to pay for at the other end. The money is ready as soon as the produce reaches him. In fact, we could draw on him at our bank with the shipping bill and contract before the goods were delivered to him.

Direct sales are the only outlet for the farmer so far as I can see. There is the same chance to buy directly, but that is another story. Look around a bit before you consign the next bunch of farm stuff to a dealer who will deduct commission, freight, and drayage. Possibly you'll save a good many dollars.

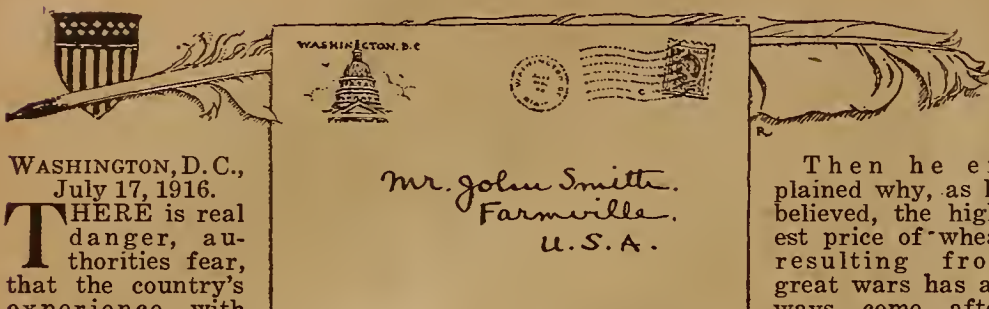


If your neighbor needs a load of hay, why not deliver it by motor truck. Farmers find more uses for trucks than the makers ever thought of

The World's Food

Crops That Will Bring Good Returns

By JUDSON C. WELLIVER



WASHINGTON, D. C.,
July 17, 1916.

HERE is real danger, authorities fear, that the country's experience with fertilizers in the last two years may produce some bad effects.

For instance: They used to believe in the potato-growing section of Maine that they couldn't get along without a fertilizer strong in potash.

The war cut off the supply of potash, which comes from Germany; but Maine potatoes have done marvelously well without it, or with only a small fraction of the usual allowance. Now a good many growers are wondering why not permanently cut out the potash.

Likewise, in some parts of the wheat belt in which commercial fertilizer has been considerably used, various fertilizer combinations have been used with very small potash content, and in many cases there has been no perceptible loss of production.

Considering how much money the Eastern States spend on fertilizers annually, it is remarkable that so little is known about them, their effects, their reasonable costs, comparative results, and the like. Some officials of the Department of Agriculture admit this, but they say that a good deal more will be known when the experience during the present potash shortage is analyzed and fully understood.

Meantime, their earnest advice to people who have done well without potash, and think of dispensing with it, can be summarized in one word:

"Don't!"

Your wheat or potatoes may have done well for a season or two with little potash. But that doesn't prove the case. First, in soils that have been regularly treated with potash there is a residual effect that carries over from one year to another for a time. Second, a favorable season is admittedly worth more than additional potash. Getting an average or even a big crop in a single season without the potash element must not be taken to prove anything.

You may have had other conditions favorable. Soils that have been well built up in the past are showing the effects now. But they will not stand a drain too long. Here's the advice a Department expert offers:

"Make the best of the present situation. There will be no German potash for fall-sown crops this year; that is certain. If possible, get the fertilizer that, in your particular neighborhood, has shown best results; use it until you can get the potash again, and then put on the potash, even if for a time it comes high."

To Build Potash Plant

An item has been written into the agricultural appropriation bill giving \$175,000 to build an experimental plant somewhere on the Pacific Coast to treat the giant kelp, a seaweed rich in potash. When dried properly it contains about 16 per cent potash. Some private concerns are already producing potash from it, and a few years ago there was some hope among optimists that this supply could be made to reduce the price that the German syndicate charges for its potash.

There is not so much optimism, in view of experience; but, nevertheless, if German supplies are shut off much longer a considerable part of our normal needs will likely be supplied from kelp, and from the alunite deposits in Utah, which produce 10 to 12 per cent of potash on proper treatment. These deposits have been found much more extensive than was formerly supposed, and are beginning to be worked.

Along with the matter of fertilizers we may also consider the probable future of different crops. June was marked by a considerable sag in the price of wheat, and a good many people are asking advice as to the outlook for another year, desiring to regulate their planting acreage accordingly—provided they like the advice.

"The best advice," said a man who has studied market conditions for many years, "is to find out what everybody else is doing, and then do the opposite thing. That rule will miss it sometimes, but on the whole it is sound."

Mr. John Smith,
Farmville,
U. S. A.

Then he explained why, as he believed, the highest price of wheat resulting from great wars has always come after the end of the war; sometimes several years after.

"When war starts," he said, "everybody thinks wheat must promptly go up; so everybody sows it. That continues while the war is on, and increased yields prevent the price from getting as high as people had expected."

"Then peace comes in sight, and everybody assumes the price will drop. So the acreage is greatly reduced—altogether too much—and a year or two or three after the war's end there is a shortage."

"That has been the fact about wheat prices for many generations, and I believe my explanation is the right one."

Another important matter is the meat situation. The world isn't raising as much meat as it needs, according to the Department. The United States is the greatest meat-raising and meat-eating country, yet we are importing more beef and mutton than we export, and our meat exports consist almost entirely of pork products.

Raise More Live Stock

The report says "it is believed" that there will be a gradual increase in production of beef, mutton, and pork; in fact, that increase has already set in in this country. From 1907 to 1913 the number of cattle steadily declined in this country. Since 1913 this decline has been checked, and there has been a turn upward. However, the increase has not been sufficient to restore the country to anything like its live-stock wealth of 1907. In that year there were 72,534,000 cattle; there are now only 61,441,000.

The number of hogs has decidedly increased since 1910. In that year there were 58,200,000 hogs; January 1, 1916, there were 68,000,000. In 1910 there were 52,500,000 sheep in the country, while this year there are only 49,200,000.

These figures would seem to indicate that hogs are the favorite money-making live-stock proposition. It isn't difficult to understand why the country is now importing rather more beef and mutton than it exports, or why it is still able to export considerable amounts of pork. If it pays better to raise hogs than cattle, why shouldn't this country accept that fact, raise hogs, sell them, and buy beef with the proceeds? Certain it is that so long as there is no tariff protection on beef that very thing may be expected to happen.

Fruit-growing has also received attention from the Department of Agriculture. If you have a notion that you want to raise fruit for market, and are disposed toward apples—don't.

And if, after deciding that you don't want to raise apples, you are still disposed to plant an orchard, why not cherries?

Look into this cherry business. I am assured by orcharding authorities of the Department, and by private growers as well, that there is a demand for cherries that is getting away ahead of the supply.

They say that the same measure of intelligence applied to cherries will, in the next few years, produce far larger returns than in either peaches or apples. The cherry tree is hardier than the apple, and far more so than the peach.

Moreover—and this is a very important point—the man who wants to go in for commercial cherry-raising can get pointers almost anywhere as to whether cherries will thrive in his neighborhood, for there is almost no neighborhood in the country that has not enough cherries to afford a basis for judging about their producing quality, and also as to the varieties that will do best. The greatest problem is that of getting enough labor at picking time, and of the right kind.

I knew a man who made a young fortune out of blackberries some thirty years ago. His place was on the outskirts of a town of about 4,000. His problem of getting the berries picked was solved by making a social function of berry-picking.



Real Estate, Then Car

By L. A. McLaughlin

SEVEN years ago my wife and I had accumulated \$1,000 from the rental of a farm received from her father's estate. I had supported the family with my salary as school teacher. We at first thought of buying an automobile with our \$1,000, but at that time they were expensive and we considered them complicated and dangerous.

On a friend's advice we bought a house and a lot containing eight acres of land, in a small town, for \$2,500. We paid \$1,000 cash and gave three notes for \$500 each, payable in one, two, and three years with eight per cent interest. We worked hard and economized until the notes were paid. During the three years the house rented for \$17 a month. In the meantime two factories and a new railroad had been built in the small town where the house and lot were located, and property increased in value.

On November 15, 1915, we sold our place there for \$3,500, making a net profit of \$1,000 on our investment. We immediately invested the \$1,000 cash payment received from the sale of the property in a beautiful 1916 model, six-cylinder, seven-passenger automobile. It is profitable for going to market and a great pleasure to the whole family. We are all delighted with it.

The \$2,500 balance due on our place is in notes drawing eight per cent interest, or \$200 a year.

Merits of Piston Rings

By W. V. Relma

THE engine is the most important part of an automobile, and the piston ring is one of the most important parts of the engine.

An automobile engine gets its power from the force of the explosion on the piston. As the piston travels upward it compresses the gasoline vapor till the electric spark explodes it and forces the piston back upon its downward journey. Of course, a piston could be made which would fit perfectly and need no rings, but it would not be practical, owing to the friction loss.

Good Rings Improve Compression

So pistons are made to fit freely in the cylinder, and small bands of elastic metal are fastened in the piston, and press against the walls of the cylinder in such a manner as largely to prevent the escape of the gases past the piston. These are the piston rings.

There are a number of kinds of rings which claim a high degree of efficiency in the prevention of this gas escape, and consequent economy in the motor. A simple type of piston ring is shown in the figure below the piston. This is a concentric ring which is used by the thousands in all kinds of motors. The patented ring claims a greater degree of efficiency than this ordinary type.

The illustrations show a number of different types of piston rings of pat-

ented shapes. These rings are all designed for the purpose of preventing the escape of the compressed gasoline vapor or "compression."

It is also desirable to prevent the passage of oil up into the combustion chamber, as this assists in the formation of carbon and also allows the spark plugs to become easily fouled. Some motors are particularly addicted to this failing and good rings are essential.

The better the compression, as a rule, the better the operation of the motor. Incidentally, the consumption of "gas" is less, carbon will have to be cleaned less frequently, and valves ground at longer periods of time. The ordinary ring will vary in cost, depending upon the machine, from 15 to 75 cents. The patented types will vary from 50 cents to \$3 per ring. It has been claimed that some patented rings are hard on the cylinder walls, causing undue wear.

Recently there have been marketed several different types of pistons made of aluminum alloys and similar metals, which, due to the very light weight, cut down the vibration of the motor and produce smoother running and quicker acceleration. These cost from \$30 a set upward, depending upon the size.

Crossing Car Tracks

DIFFERENT drivers have their own ways of guarding against danger when crossing car tracks, and the opinions of readers are invited on this subject. One experienced car owner gives his views on the subject as follows:

No hard and fast rule can be laid down because scarcely any two crossings are alike. But there is one caution which always applies: "Don't take a chance; find out if there is danger." If you can see a quarter of a mile or more up and down the track, and no train or traction car is in sight, cross the track at a lively rate of speed, anyhow 15 miles an hour. Some drivers stop too near the track and then try to go over slowly. If a train whistles, they lose their heads and may kill their engine by putting on too much power. Always have enough momentum to carry you across.

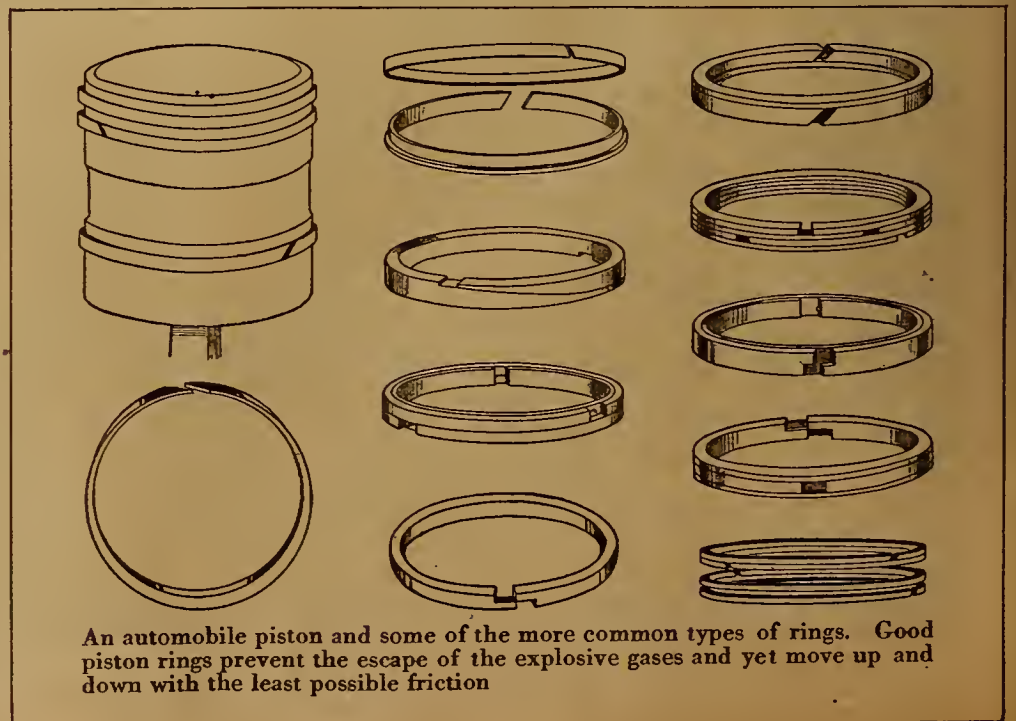
Another thing: When a clear view of the track in both directions is blocked by buildings or trees, stop your car and have someone get out and look or, if you are alone, slow down the motor enough so you can hear an approaching car or train. If no train can be seen or heard, then cross with plenty of power, but never try to beat a train across. Under all circumstances have your feet ready on the pedals and decide beforehand what you would do in case of danger.

Crossing a track in an automobile is safer than with a horse and buggy because the automobile will do what you wish it to do and the horse has opinions of his own. If you have side curtains on the car, be doubly careful to scan the track both ways. These remarks may seem overcautious, but they are based on the text of "Safety first."

Roadster or Touring?

A SOUTHERN reader writes that he is undecided between a touring car and roadster for his family of three. In the make of car which he is considering the touring car costs \$20 more, and he asks which is the better "buy."

A touring car is usually the better proposition when there is any doubt. The space in the back seat will be useful for carrying supplies, for marketing eggs and dairy products, and of course for extra passengers. A used touring car will also bring a better price than a roadster, in most cases, if the owner desires to sell.



An automobile piston and some of the more common types of rings. Good piston rings prevent the escape of the explosive gases and yet move up and down with the least possible friction



This is the way cane is hauled to the mills. The cartmen earn as high as \$10 a day, but oxen are expensive



The cane is then unloaded, and dumped on a long feeder, which starts it on its journey through the mill

NOTHING about the sugar industry, which was full of surprises, astonished me more than to discover that seven crops of cane are raised on Cuban land without sticking a plow in the soil. This is one of the several reasons why Cuba can produce sugar cheaper than any other country in the world and does the job so well.

The clearing is simple. With ox and machete the Cuban fells the trees and hacks down the underbrush. These he lets lie until dry and then sets them on fire. The stumps and the loose logs that do not burn are left undisturbed.

The land is ready to plant—no plow or harrow or disk ever comes near it. A joint of sugar cane eight or ten inches long is buried in the loose soil every five feet.

And for seven or eight years, without any cultivation whatever, that one planting produces cane. The sprouts from the stumps are cut down the first and second year. After that even a hoe is never needed in the field.

The cane grows so rank that all weeds and grass are smothered out. At cutting time the leaves, which are stripped from the stalk, cover the ground thickly and prevent any growth except the cane, which quickly sprouts from the same roots as before.

Another surprise was that cane does not ripen nor need it be cut within a few days, or even weeks. It is very accommodating. One good crop grows in twelve months. But if the farmer's relatives are visiting him, and he wants to take a few months off to show them the country, and try to induce them to go bathing where there are lots of sharks, it is perfectly all right with the cane.

Can Delay the Harvest a Year

IT JUST keeps on growing, and he can cut it next year. And instead of spoiling by a month's, a six months', or a year's delay, the two years' growth makes almost as much sugar as two crops.

However, it is much better, aside from needed ready money, to cut the cane every year. The cutting begins about the first of November and lasts until May or June. These months are driest in Cuba, and dry weather is essential for hauling. As to Cuban roads when it rains—well, they are at least as bad as ours.

The cane is usually cut and hauled by contract. The cutters this year got 90 cents a ton for cutting, which includes stripping. It is hauled to the mill in two-wheeled carts pulled by three or four yoke of oxen. Four to six tons are hauled at a load.

The cartmen are the aristocrats of the cane field. They get 60 cents a ton for hauling any distance under a mile and a half; more if it is farther. A cartman often makes, at the present scale, \$10 a day.

But oxen are high. A wagon and four yoke cost

Sugar Cane in Cuba

No Trouble to Grow It, But Marketing is Costly

By WILLIAM H. HAMBY

nearly a thousand dollars; so a thrifty Cuban who saves up enough to have a carting outfit is sure of not having too much competition.

The whole load of cane is lifted by one hoist of a pulley and dumped on a long feeder (like an exaggerated straw carrier on an old threshing machine) to the mill. The carts wait their turns to be unloaded.

At the end of the cutting season there is a great



A cane fire, the terror of the sugar grower. The leaves are like tinder at cutting time

fiesta. The cartmen in bringing in their last loads decorate their oxen and carts, and that night there is a dance and food and drink. But I did not see in all Cuba a Cuban drunk. One of the favorite drinks is made of pineapple.

The yield is very heavy, some cane fields cutting as high as 60 tons to the acre. A ton makes approxi-

mately 300 pounds of sugar. At the present prices of sugar the cane grower gets about \$5 a ton for his cane at the mill.

A man could get immensely rich raising cane in Cuba if there were no drawbacks. But there are. One is that you must be within three miles of a mill or the hauling ruins the profits. But the worst, the constant terror of the

cane man, is fire. And he can't get away from it.

The leaves are like tinder at cutting time: a spark from a careless cigarette—there are millions of cigarettes—a match from a discharged workman, a puff from a careless laborers' camp, or a blaze from somebody's clearing, and fire sweeps the cane field like a whirlwind. I saw two hundred thousand dollars' worth of cane go up in smoke in four hours.

The growers are organized to fight fire, and watch constantly. But even then the loss is heavy. However, after a fire all the cane that can be got to the mill in three days is saved. The stalk does not burn, but the heat cooks the syrup and it sours after three days. When there is a fire all the neighbors turn out to help the owner get as much cane to the mill as possible.

But in spite of all drawbacks, at present prices, Cuba is growing immensely rich on sugar. Last year the sugar crop yielded for every man, woman, and child in the island, \$125 in cash. And, of course, this is only one of many crops the island grows.

A Real Farm Club

By MARTHA EDMONDS

THE road leading north from Clarinda, Iowa, has long been known for business purposes, and more particularly social purposes, as "Wall Street." The farmer folk living along this road have very good dirt roads. They have a telephone system of their own, and a free mail delivery every legal business day.

A flourishing men's club, called the Wall Street Industrial Club, meets every week during the winter season at the homes of some twenty members. A royal good time is had with talks, debates, and fun, well mixed together. All the progressive men—old and young—belong.

Not all the good times are due to the men's club. For more than three years the ladies have maintained a home circle called the Jackson Home Circle. Around and around they go from one house to another, holding their meetings every two weeks, ten months of the year. They have programs of health, beautifying homes, literary and gala days. Two or three times during the winter the men's club and the ladies' circle join together and have a social evening.



Here is a field of cane that has never been plowed and yet the cutting you see yielded 60 tons to the acre. This grower is fortunate to be so near the mill. There is little profit in cane plantations more than three miles from a mill, due to the expense of hauling

FARM and FIRESIDE

THE NATIONAL FARM PAPER

Published Twice a Month by
The Crowell Publishing Company
Springfield, Ohio

Branch Offices: 381 Fourth Avenue, New York City;
Tribune Building, Chicago.

Entered at the Post-Office at Springfield, Ohio, as Second-Class Mail Matter.

Subscription Price

One year (24 numbers), fifty cents. Three years, one dollar. Extra postage for Canada, twenty-five cents a year.

About Advertising

Farm and Fireside guarantees that its advertisers are responsible and honest people, and that its subscribers will receive fair and square treatment.

Advertising rates and regulations furnished upon request.

August 5, 1916

Better World Agriculture

ONE of the results of the European war is going to be the extension of American agricultural methods to the waste places, or the badly farmed places, of the world. They tell us that Siberia and Russia in Europe could hold all the population of the world and feed and clothe it comfortably, if modern methods were employed. The Russians are awakening to the need of better methods. They are going to have scientific agriculture taught, to introduce co-operation, to bring in our types of farming machinery, which are the only ones adapted to handling big areas, and to build better roads.

Everybody will be glad to see the light break in on the benighted Russian peasants, but it means that American farmers will ultimately face a competition that they must not despise.

A few decades ago there was worry about whether the world could for an indefinite time produce all the things from the soil that its increasing population would require. Now the question is whether it will be able to consume all it can raise under right methods.

North America must go on keeping the lead in methods or else it will find farming in a bad way. There are a good many chances for betterment, and they depend a good deal more on the enterprise and initiative of the farmer than on the leadership of government.

There is no country in which the people can do so much for themselves or in which the Government can do so little for them as the United States. We aren't the sort of folks that accept government dictation in such details. It is up to the farmers to keep American agriculture at the top, and the next generation will show whether they can do it.

Woman Occupies New Place

"WOMAN'S place," we have been told a good many times, "is in the home." Is that always so? One parliamentary statement recently alleged that 300,000 women in Great Britain are now holding jobs that before the war were indisputably for men alone. Others have placed the number as high as a million. In Germany the number is greater, by all accounts, even in proportion to the population. Moving pictures recently brought to this country of munitions factories in England showed hundreds of women operating lathes, stamping machines and doing other work that two years ago nobody would have dreamed of seeing women do.

These calculations, it is understood, do not consider the armies of women all over Europe who are doing farm work they did not perform under normal conditions. Women are street-car conductors, and even motormen; machinists, factory operatives, printers—they do almost anything their distressed countries need done. They are getting a new sense of their capabilities; they like the independence of even hard, unaccustomed work, if it pays good wages.

After the war the world will have to face the fact that woman occupies a new place in its scheme. She will not

give up her larger independence, her greater economic importance. The war has speeded up the inevitable process of emancipating woman, industrially and economically. Our own country will feel the effects: some of them in ways already reasonably obvious; others in ways we cannot yet realize.

Dairymen Seek Relief

THE convention of milk producers and other dairy interests, held in Washington in May, brought representatives of 91 organizations, about 200 delegates, and a beginning of a great work for dairymen. There was voiced throughout a strong feeling that recent attacks on the dairy interests, such as resolutions in Congress assailing dairy products as unclean and unwholesome, have been inspired by interests that want to injure dairying in order that the tax on oleomargarine will be removed. Things

The Reading Habit

READING is all a matter of habit—at least among grown people. The "born reader" doesn't exist—at least, I have never met him. But the man or woman who has formed the habit of reading, who has learned that reading is the easiest way to gain information, sharpen the mind, and not the tongue, is found in every circle of acquaintances. Of course, there is no set rule for this sort of thing, but haven't you noticed that the person from whom you learn the most, the friend who is wisest and most helpful, is a reader?

Necessarily, the number of our friends and the variety of our own experiences is limited, but at the nearest public library, perhaps right on your sitting-room table, there is waiting for you such a host of friends and such a variety of interests as to make your life full and interesting. Are you a reader?

Wortermelon Time

By James Whitcomb Riley

OLD wortermelon time is a comin' round again,
And they ain't no man alivin' any tickler'n me,
Fer the way I hanker after wortermelons is a sin—
Which is the why and wherefore, as you can plainly see.
Oh! it's in the sandy soil wortermelons does the best,
And it's there they'll lay and waller in the sunshine and the dew
Tel they wear all the green streaks clean off theyr breast;
And you bet I ain't afindin' any fault with them; air you?

They ain't no better thing in the vegetable line;
And they don't need much 'tendin', as ev'ry farmer knows;
And when theyr ripe and ready fer to pluck from the vine,
I want to say to you theyr the best fruit that grows.
You don't want no punkins nigh your wortermelon vines—
'Cause, some-way-another, they'll spile your melons, shore;—
I've seen 'em taste like punkins, from the core to the rines,
Which may be a fact you have heerd of before.

But your melons that's raised right and 'tended to with care,
You can walk around amongst 'em with a parent's pride and joy,
And thump them on the heads with as fatherly a air
As ef each one of them was your little girl er boy.
I joy in my hart jest to hear that rippin' sound
When you split one down the back and jolt the halves in two,
And the friends you love the best is gathered all round—
And you says unto your sweetheart, "Oh, here's the core fer you!"

And I like to slice 'em up in big pieces fer 'em all,
Espeshally the childern, and watch theyr high delight
As one by one the rines with theyr pink notches falls,
And they holler fer some more, with unquenched appetite.
Boys take to it natchurl, and I like to see 'em eat—
A slice of wortermelon's like a French harp in theyr hands,
And when they "saw" it through theyr mouth, sich music can't be beat—
'Cause it's music both the sperit and the stummick understands.

Oh! they's more in wortermelons than the purty-colored meat,
And the overflowin' sweetness of the worter squashed betwixt
The up'ard and the down'ard motions of a feller's teeth,
And it's the taste of ripe old age and juicy childhood mixed.
Fer I never taste a melon but my thoughts flies away
To the summertime of youth; and again I see the dawn,
And the fadin' afternoon of the long summer day,
And the dusk and the dew a fallin', and the night a comin' on.

And there's the corn around us, and the lispin' leaves and trees,
And the stars a peekin' down on us as still as silver mice,
And us boys in the wortermelons on our hands and knees,
And the new moon hangin' o'er us like a yeller-cored slice.
Oh! it's wortermelon time a comin' round again,
And they ain't no man alivin' any tickler'n me,
Fer the way I hanker after wortermelons is a sin—
Which is the why and wherefore, as you can plainly see.

(By Permission of Bobbs-Merrill Company)

are getting shaped for a royal row between the oleo people and the farmers.

The convention devoted itself to constructive business. It criticized many regulations imposed by city health and dairy departments upon milk producers; and, instead of merely denouncing these, it produced testimony to their unreasonableness—testimony from authority and of a sort calculated to help officials in modifying their rules to reasonable standards.

Most gratifying was the disposition of the Department of Agriculture to understand and help the dairy people. The Department is not in sympathy with excesses of regulation, and is ready to help get them modified within reason and sanity. Thoroughly convincing arguments were made, from extensive experiments, to show that much of the regulation that has made milk production so expensive as to be unprofitable contributes nothing to improving the quality of the milk.

Our Letter Box

For Higher Milk Prices

DEAR EDITOR: It is a shame that many men cannot make a decent living for themselves and their families in farming in some parts of New England because of low prices. The milk dealers' associations have already taken this matter up, and are trying to get an increase in the price of milk per gallon which is shipped to the big dealers in Boston.

It is admitted that at the present prices (four cents a quart, for which the big retail dealers get nine) there is scarcely any profit, and would not be if the producers had to go in the open market and buy their feed. Their hay actually costs them \$10 a ton. Counting merely cost of production on reasonably priced land and farm equipment valuation, they could not buy hay on an average for less than \$20 a ton.

Every man is entitled to work at sufficient wages to support himself and his family decently, and it is the duty of somebody to provide it, and see that he

has it. That somebody can only be the Government. The day has passed when cotton raisers, tobacco growers, or the fruit growers can destroy a portion of their crop in order to maintain prices.

C. E., New Hampshire.

To Burn Out Stumps

DEAR EDITOR: Some forty years ago I moved up to British Columbia, and found that the Siwash (natives) had a very simple and effective way of burning down trees and incidentally burning out the stumps and the roots at the same time. We, the white settlers, improved upon their method by using a long-handled two-inch auger, boring a hole parallel with the ground to about the center of the stump and as close to the ground as possible. To meet this hole we bored another one at an angle of 45 degrees. We then dropped red-hot charcoal down the upper hole, and the draft soon started the stumps burning, and it would burn them away down below the ground. After getting a good start they need no attention, as they will burn as long as there is anything to burn. The number a man can burn is only limited by the number of trees he can bore.

SAMUEL HAIGH, California.

Here are Sugar Peas

DEAR EDITOR: When looking over a July, 1915, copy of FARM AND FIRESIDE I read this: "Can any reader tell us about the old-fashioned 'sugar peas' which were boiled and eaten in their pods? An Ohio reader asks for them. Only one person has been found who ever ate them." This last sentence is the strangest part of the announcement. My parents and grandparents resided in Stark County, Ohio, and grew them in their gardens in 1909 and 1910. J. B. Mills listed them in his catalogue as "Pride of the Garden." I bought a peck, and they were the old-fashioned "sugar peas."

I have a few of the peas, now, which I have just planted.

MRS. A. E. BALDWIN, Washington.

About Farm Training

DEAR EDITOR: A college education is desirable, but if it cannot be obtained the farm boy or girl need not go through life unequipped.

There are many things studied in college that can be learned on the farm with the help of the public school, the federal and state departments of agriculture, the county farm agent, and the many other helps available for the boy or girl eager to learn and whose parents have the good sense to aid him in his quest.

Such knowledge is legal tender anywhere and in any calling. Farm training is the natural basis for any kind of training. If we learn to be good farmers, we have started ourselves well on the way to any business we may afterward choose, for all the principles of science and philosophy, all the laws of Christianity, the secrets of health, wealth, happiness, economy, and about anything else we care to know, are wrapped up in the portion of nature we call our farm. MRS. M. S., Missouri.

About Vacuum Bottles

DEAR EDITOR: After reading the description by one of your readers of his experience with a vacuum lunch kit, I want to tell you about our experience. My brother James sent my eldest girl a vacuum bottle for a Christmas present. At the time I thought it was a mighty useless gift for a country girl, as I couldn't see why she should want to keep hot things hot, or cold things cold in a bottle here on the farm. The first time it occurred to me to use it was when the children were going berrying and wanted to carry a lunch with them. I filled the bottle with ice-cold lemonade, and they came home very much delighted with it.

My husband then tried the bottle, and decided to get two others for the men to use out in the field. All through the winter we found ways of using them to keep coffee or chocolate hot. I found that a vacuum bottle would keep milk for the baby at just the right temperature during a trip to town, and so I was able to go to town for buying a good deal oftener than I should have if I had been worried about feeding the baby.

MRS. J. C., Texas.

For Practical Farmers

DEAR EDITOR: I missed my last paper, and it was like missing an old friend. I have been a subscriber to FARM AND FIRESIDE for some time and expect to remain one, for I do not believe FARM AND FIRESIDE has an equal for farm news. I believe it is as good, if not better, than any other farm paper published. It gives us so many valuable items on practical farming.

A. B. WHITE, Kentucky.

Good Health Talks

By DR. DAVID E. SPAHR



THE ban has been placed upon the broom by those high in authority in medical and sanitary science. The dear old broom, that has literally worn itself out in its war to the death against dirt and uncleanness for generations, and has been

the tidy housewife's symbol of cleanliness and purity, has been indicted. The charge was "raising a dust" and filling the air with floating particles laden with germs, thus disseminating disease and spreading contagion. Proof complete and positive was presented to those high in medical science. The indictment was sustained; the broom was found guilty, and a sentence of banishment pronounced against the defenseless sweeper. Hereafter its onerous duties are to devolve upon the various vacuum cleaners, which are more sanitary.

Hives or Nettle Rash

J. H. of Idaho has described his case of urticaria, or bold hives, very perfectly. He has taken Epsom salts, has quit drinking coffee and eating meat, and is still no better.

YOU should correct faulty digestion by taking an aloin, strychnia, and belladonna tablet at night, and five drops of dilute hydrochloric acid in a half glass of water after meals.

Itch Cure Wanted

What can we take for itching of the head and body? The whole family is affected. M. R. L., North Dakota.

WASH the body thoroughly with green soap or some strong lye soap. Then apply an ointment of sulphur, 2 ounces, and lard, 4 ounces. Mix thoroughly and apply freely to the parts of the system involved, for three nights in succession.

Then the fourth night take a hot bath and put on clean clothes and burn the old ones, and the cure is usually complete.

Trembling

I am a farmer twenty-one years old, and after doing a day's work my hands tremble so I can hardly write. It also affects my arms. What is it? E. H. R., Kansas.

THE various toxins as lead, tobacco, opium, coffee, tea, cocaine, and arsenic, as well as hysteria and old age, are the etiological factors in tremor. It has been observed in families where it appeared to be hereditary.

Do you use coffee or tobacco to excess? In normal persons of a nervous temperament under excitement or alarm, it should cause no apprehension.

Write me further as to your habits, and perhaps we can unravel the difficulty. You are too young to be so affected.

Potassa-Iodide

Someone advised me to get one ounce of iodide of potassium and dissolve it in a point of water and take a teaspoonful three times daily for bronchial asthma. Is this injurious, and will it do me any harm? Mrs. C. S. P., Idaho.

THAT would be about the minimum dose. It will not do you any harm, and it may possibly do you some good, and you can easily double the dose as soon as your system becomes accustomed to it.

Quinsy

I want to know what will cure and prevent quinsy. J. S., Wisconsin.

IF THE tonsils are diseased, or if there have been repeated attacks of tonsillitis, have the tonsils removed. Then special care should be taken of the throat to prevent colds and to avoid contagions. The treatment varies in every case. Cold applications, cracked ice to swallow, antiseptic gargles, and in some cases antitoxin.

Granulated Eyelids

What shall I do for granulated eyelids? Mrs. S. G., Texas.

AFTER cleansing the eye with a boric-acid solution (ten grains to ounce) rub proto-nucleon powder into the granulating surface daily.

Ira Vail Won \$2000

Against the World's Great Racing Cars with a

Hudson Super-Six

The Only Car That Kept Going

The Hudson Super-Six is not built for a speed car. And we don't build special racing cars.

Our speed tests are made to show the endurance of our patented Super-Six motor. And here is one test which did it.

Met \$10,000 Cars

The Metropolitan Race on the speedway in New York is the great racing event of the year. The world's best racing cars are entered. Their cost will average \$10,000 each.

Ira Vail, of Brooklyn, entered that race with a Hudson Super-Six, which had been run for months. And everybody laughed. The motor was our regular Super-Six. The car, being a used car, cost him \$1,300. For such a car to meet the world's finest racers seemed like David and Goliath.

It Never Stopped

The other cars ran faster, but they had to stop. The terrible speed called for repairs and adjustments. The Super-Six ran the 150 miles without a single stop. It was the only car that did that.

So the Super-Six defeated most of those racing cars. It won third place and \$2,000. It was only five minutes behind the first car. All because this engine excelled all others in reliability.

1,819 Miles in 24 Hours

Another Super-Six ran 1,819 miles in 24 hours. That is as far as from New York to Denver. And one man drove it all the way.

That was a stock chassis, exactly the same as in the cars we sell. The A. A. A. officials certified to that. No other stock car has ever run more than 1,200 miles in that time.

That was due to endurance. The Super-Six kept an average speed of 75.8 miles per hour, and kept it for 24 hours.

Like 10 Years' Use

That same Super-Six has been run at top speed for 3,800 miles. And not a part or bearing in the motor shows evidence

of wear. That means more strain than ten years' average use.

That is what we are proving—how the Super-Six will last.

This motor is a Hudson invention; controlled by Hudson patents.

By eliminating vibration—the cause of friction—the power is increased 80 per cent. So the Super-Six—a small, light Six—delivers 76 horsepower.

And that same utter smoothness gives this wondrous endurance.

Hudson Now Supreme

The Super-Six motor makes the Hudson car supreme. The man who owns one feels himself the master of the road. He meets no car so powerful, so speedy or so flexible. No stock car ever built has matched it in performance.

He meets no car more beautiful, more luxurious or impressive. He meets no car so durable. He goes anywhere and everywhere with a knowledge that none ride more safely or comfortably. And yet the owner of a Super-Six pays but a modest price.

Here is a car 80 per cent more efficient than Sixes used to be. When you buy a fine car you are bound to select it. So we want you to know the facts.



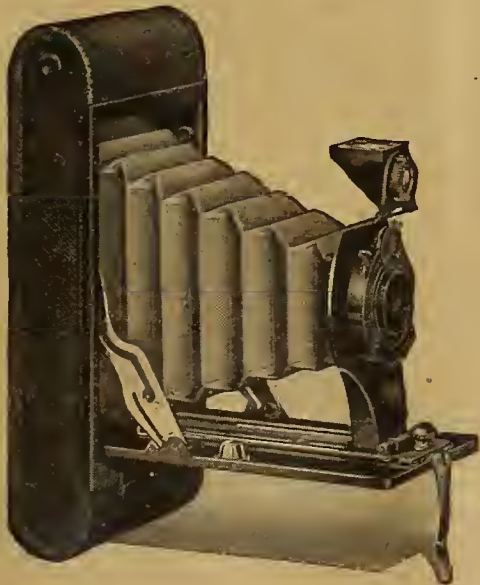
7-Passenger Phaeton, \$1,475 at Detroit

Seven other styles of Bodies

Hudson Motor Car Company

Detroit, Michigan

Get This Dandy Camera Without One Cent of Cost



We extend to any person, man, woman, boy or girl, a cordial invitation to join our *Camera Club*. There are no conditions, "ifs or ands;" simply write and say you want to know how to earn a camera.

You Can Earn Your Camera in One Afternoon

We have presented dozens of these cameras to readers of *Farm and Fireside* this year.

ADDRESS

CAMERA CLUB, FARM AND FIRESIDE
Springfield, Ohio

The new Four

Model 85-4

\$795

f.o.b. Toledo

Overland

TRADE MARK REG.

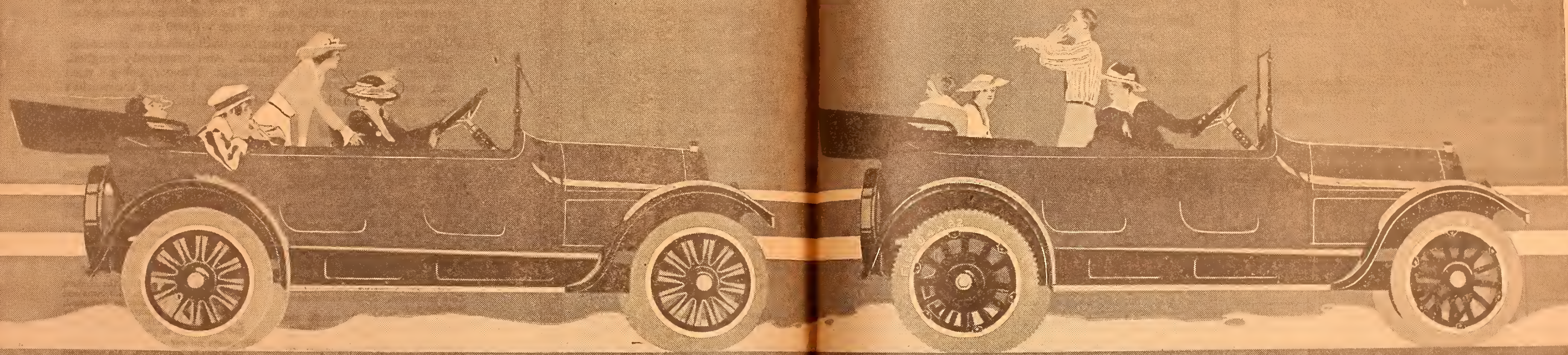
Announcement

The new Six

Model 85-6

\$925

f.o.b. Toledo



What 1000 Cars a Day Make Possible

These two latest Overland developments again emphasize the enormous economy of enormous production.

No one has ever before made 1000 a day of cars of this size and class—nor half that many.

1,000 cars a day enable us to use materials of a much higher quality and not only permit but actually enforce an accuracy of workmanship which smaller productions of cars in the same price range *neither permit nor require*.

1,000 cars a day make possible better, larger, much more comfort-

able cars than have ever before been possible at anywhere near the price.

This newest Overland is the largest Four ever offered for so low a price.

In the first place, note the longer wheel base—112 inches.

The enbloc 35 horsepower motor which has made the Overland famous is continued.

True—it is perfected even more and now it is a fitting climax of the experience obtained from a quarter of a million of these Overland motors in daily use.

Shock absorbing cantilever type rear springs are a big improvement.

The gasoline tank placed in the rear is another improvement. The vacuum system insuring a steady even gasoline flow at all times is still another improvement.

The famous and complete Auto-Lite electric starting and lighting equipment is furnished.

All electric switches are on the steering column—right within reach.

The artistically designed streamline body with one piece cowl makes this car one of America's most attractive models.

Yet the price of this, our greatest cylinder value, is less than any of its size ever sold for before.

* * *

No less a pace maker is the newest Overland Six.

Here is the Six of Sixes! A snappy passenger long stroke 40 horsepower model—easy to handle, light, economical, mighty comfortable, having all the advantages of higher priced Sixes, yet it comes absolutely complete at a lower price than any other six of its size.

Its smart body design is long and low—having lines of artistic simplicity.

And the motor! This will warm the heart of every six cylinder enthusiast in the country.

You've heard all about fast get-aways—smoothness—crawling and climbing on high. This Six does all that and then some!

The wheel base is 116 inches. It has cantilever springs and even-flow vacuum system with the gas tank in rear.

The tires are four inch. It has the complete Auto-Lite electric starting and lighting equipment with all switches on the steering column.

* * *

Some Six! Yet the price is lower than any other Six of its size.

But go to the nearest Overland dealer and see these new models. Go over them—note all the very real and important improvements.

The Overland dealer is ready to make demonstrations of both models now.

The New Four

Model 85-4

35 horsepower en bloc motor
112-inch wheelbase
32 x 4-inch tires
Cantilever rear springs

Auto-Lite starting and lighting
Vacuum tank fuel feed
Gasoline tank in rear with gauge
Electric control switches on steering column

Catalog on request. Please Dept. 808

The Willys-Overland Company, Toledo, Ohio

"Made in U.S.A."

The New Six

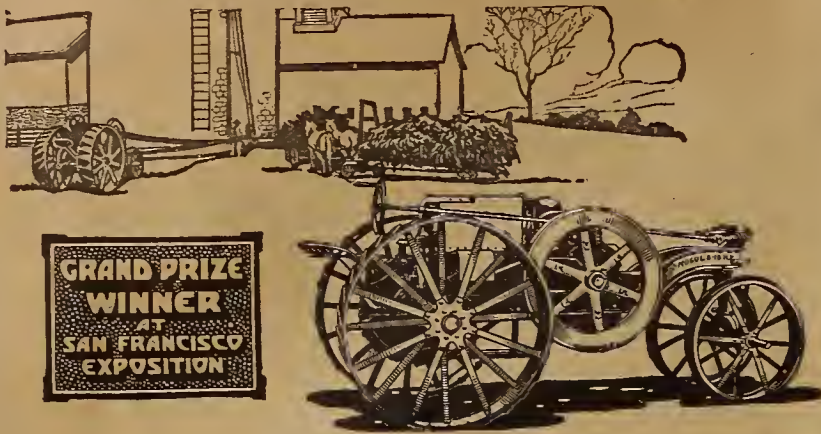
Model 85-6

35-40 horsepower en bloc motor
116-inch wheelbase
32 x 4-inch tires
Cantilever rear springs

Auto-Lite starting and lighting
Vacuum tank fuel feed
Gasoline tank in rear with gauge
Electric control switches on steering column

Mogul 8-16—A Real Kerosene Tractor

Sells for \$725 Cash f. o. b. Chicago



WHEN you buy a tractor, look beyond the price. It is not the price a man pays for a tractor which is of the most importance, but **what its power costs.** A Mogul 8-16 burning kerosene, in 5,000 hours of work, will save more than its original price over the cost of the same power produced by a gasoline tractor. Remember, the 8-16 is a real kerosene tractor, planned and built originally for using this cheap, plentiful fuel. Price is of minor importance compared with Mogul 8-16 saving.

It is our policy to sell the Mogul 8-16 at the lowest possible price, always maintaining Mogul quality, though nowadays some of the materials are almost unobtainable even at an advance in price of from 50 to 100 per cent over the prices of a few months ago. \$725 cash f. o. b. Chicago is the lowest price at which Mogul 8-16 can be sold.

Orders placed at once will stand the best chance of being filled without delay. See the Mogul 8-16 dealer or write us for the story of kerosene before you buy any tractor.

International Harvester Company of America

(Incorporated)

CHICAGO

USA

Champion Deering McCormick Milwaukee Osborne Plano



Dairying

Sweet-Clover Bloat

By Carlton Fisher

THE belief that sweet clover will not cause bloat has been held so long and has been supported by such good testimony that it has come to be accepted as a fact. Several authentic cases of sweet-clover bloat have been observed, however, in Nevada and Iowa, and owners of cattle and sheep who have sweet-clover pastures will do well to exercise caution.

The danger is not as great as in pasturing alfalfa, since sweet clover has in it a substance known as coumarin, which offsets bloating, though in view of the latest observations it does not prevent it entirely.

Farm-Bureau Excursion

By M. C. Knight

ONE of the principal duties of a county agent is to visit farms at the invitation of the owner and make such suggestions as will be of benefit.



The members believe that the best way to learn better methods is to go and see for themselves

But in Pennsylvania the county agent does not always go alone.

The picture shows a delegation of farmers on a farm-bureau excursion. They are inspecting a herd of profitable milking Shorthorns belonging to one of the members. The purpose of such excursions is to become more familiar with the best method of farming used in the county, and also to get acquainted with each other. Seventy automobiles were needed on this trip to transport the delegation from farm to farm.

Greens for Dairy Cows

By Carl J. Menge

IN a recent issue of FARM AND FIRESIDE you called for farmers' experiences with live stock. Following is a method of feeding dairy cows that we follow very successfully on our farm here in Washington State.

In order to keep a cow in good condition and expect her to produce the maximum amount of milk and butterfat through the winter, you must provide some form of succulent feed to be given along with the hay and grain ration. If you have a large herd you can build a silo which will provide succulent silage. But if you have just a few cows and no silo, you must plan your crops ahead so as to have the desired green feed when the pasture gets short in late summer, and also all through the winter.

For feed in the late summer I use corn that has been planted in well-

fertilized ground in rows two feet apart and eight inches apart in the rows. Planted in this way the corn is not as coarse as if grown in hills, and it also produces more feed. I commence to feed as soon as the pasture gets short, giving each cow a good armful every night.

After corn I feed cow kale which has been planted in a seed bed in the spring and later transplanted to the field in rows two feet apart and a foot apart in the row. When first commencing to feed I take every other plant so as to give the remaining plants more room to spread out. Kale produces an immense amount of feed if properly cared for and it will stand a considerable amount of frost without harm. Always try to transplant from the seed bed to the field on a cloudy day or before a rain if possible.

When the kale is gone I feed mangels. I plant them with a garden drill in rows sixteen inches apart and eight inches apart in the row. Have the seeder drop three or four seeds in each hill, as a few cents' worth more of seed is better than an uneven stand. Thin them out so the strongest plant remains in each hill, and keep them free from weeds.

Protect Mangels from Frost

I dig them in the fall before freezing sets in, and store in a good dry place so I can get at them through the winter. But be sure they are well protected from the frost, as I have seen many a day's work lost and the mangels gone when a few hours' work would have made their storage place frost-proof. I have no root cutter. I wash them if they are dirty, and put them in a box made for the purpose and take a square-edged spade and chop them up. I give each cow a water-bucketful twice a day.

In the fall, after I have dug my potatoes, I gather the tops and burn them to keep any possible disease from spreading. Then I harrow the ground and seed to either winter rye or oats. This is ready to feed in the spring and makes a good green feed.

Buttermilk Too Rich

AN OHIO dairyman wishes to know where he fails in butter-making. He uses a cream separator, ripens it at a temperature of 75 degrees for two days, and churns at 58 degrees. He gets excellent butter, but a very small quantity, and the buttermilk is rich like cream.

This difficulty may be due to a number of causes, such as feeding too much cottonseed meal, which hardens the fat globules, lack of enough lactic-acid bacteria to ripen the cream sufficiently, or too warm wash water, which softens the fat and allows it to waste.

In view of these points the remedy will suggest itself. One of the simplest practical means of hastening ripening is to use buttermilk from a previous churning. The buttermilk is already rich in the lactic-acid bacteria which ripen cream, and if one part of buttermilk is used to ten of cream, the cream will ripen more thoroughly and quickly. Of course, the buttermilk should be of good quality.

Trucks for Show Stock

By C. O. Reeder

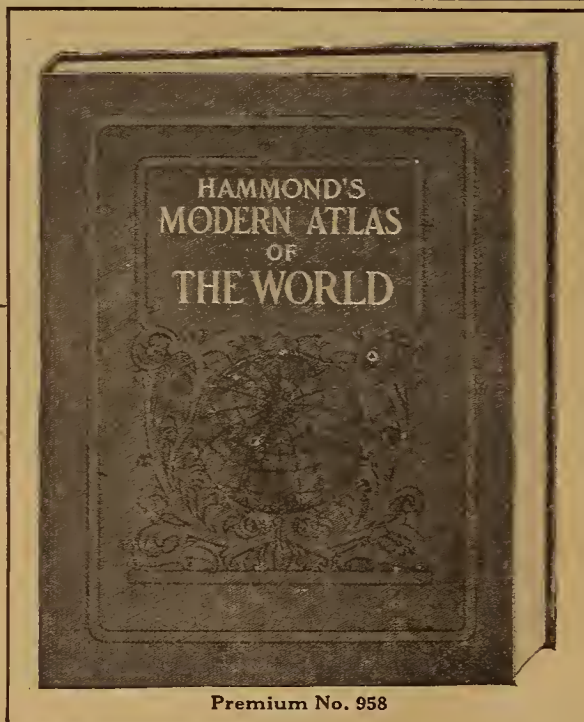
ABREEDER of fine Guernseys wished to exhibit sixteen of his best animals at a fair sixteen miles away. There was no direct rail route, and he disliked to drive them that far in hot weather.

By using a three-ton motor truck he moved them all safely in one day, thereby keeping them fresh and in good condition for exhibition purposes. Up to distances of seventy-five miles, motor trucks compete favorably with railroads in the economy of handling perishable freight. Long trips are usually made at night, when there is little traffic on the roads.



The fair grounds were too far away to drive the show stock, and the railroad route required changing cars. So this breeder delivered them by motor truck.

Keep
Posted
on the
Mexican
Situation



Follow
the
Armies
in the
European
Conflict

There Never Was a Time When You Needed a World Atlas as You Do Now

Our New Modern Atlas of the World is needed in every American home. It contains many new and attractive features and is of especial interest at this time on account of the Mexican situation and the great conflict raging across the water.

A SPLENDID BIG, HANDSOME BOOK

Nearly two hundred pages—size 10¼ x 13½ inches. Superbly illustrated and bound. It should have a place in YOUR home

Do not confuse this book with the so-called "Handy" Atlases. This is a big, handsome book, cloth bound, and contains maps in five colors of every country on earth, 128 pages of them, every State in the Union, the Canadian Provinces, the countries involved in the great World War, Mexico, showing the United States border; together with population gazetteers for the United States and the world. In short, the book is brim

full of just the kind of information you want—to-day, to-morrow, every day. You need this book for yourself; you need it for your children. We advise you to take advantage of this splendid opportunity. Send your order now.

How You Can Get YOUR Copy

Simply clip the coupon to the left, fill in your name and address, enclose with \$1.00 cash, check or money order and we will send you a copy of the atlas all charges prepaid and also send FARM AND FIRESIDE for one year (old subscriptions extended). This offer positively expires in 30 days. Address

Farm and Fireside, Springfield, O.

USE THIS FORM TO SEND YOUR ORDER
Gentlemen: Find herewith \$1.00 for which send me (charges paid) one copy of the New Modern Atlas and also (optional) one year of FARM AND FIRESIDE for one year.
Name _____
P. O. _____
Rt. P. D. _____
or Street _____
State _____
F. & F. 85



Live Stock

Laminitis or Founder

By F. H. Sweet

LAMINITIS, or what is commonly called founder, may be either acute or chronic. Its causes are many and varied, the most common being exposure to cold after severe exertion, exhaustion, copious drinking of cold water while perspiring freely after a long ride or hard work, and the like. Sometimes one foot only is affected, often both, and occasionally all four. The first symptoms of founder are indicated by fever in the foot, accelerated pulse, fiery red nostrils, and evidence of much suffering. If doubt is felt as to the seat of the inflammation, gentle tapping of the feet with some hard implement will instantly dispel it.

The foundered horse is apt to lie down to relieve his aching feet from supporting the weight of his body, but sometimes the suffering animal is afraid to do so, and stands up during the acute attack. Unless something is promptly done, the foundered horse, once down, will be unable to rise; or, if forced to do so, will often fall. Bleeding is the only remedy; but this must be done under the supervision and direction of a veterinary. Time is precious, as every hour's delay lessens the chances of ultimate complete recovery.

Chronic founder may be the result of an acute attack. It is superinduced by contraction of the hoofs, rheumatism, or any lameness caused by barbarity of the blacksmith in removing the bars; cutting away the soles until they yield to the pressure of the thumbs; cutting away too much of the frog, which is the natural cushion to counteract concussion; rasping away the outer surface of the hoof, often to the coronet; driving the nails too high; and like atrocities.

What is erroneously termed "chest founder" is either lameness of the shoulder or contraction of the muscles of the chest (hollow chest) from rheumatism or from lack of normal exercise. The true founder is invariably in the feet. While acute founder is curable, yet it must be admitted that one attack predisposes the animal to another.

The horse with chronic founder is incurable, and although such an animal may perform considerable work on the farm, it is unsuitable for driving, and is a dangerous animal under the saddle.

Cattle to Foreign Ports

By Frank D. Tomson

IN ADDITION to the recent export shipment of Shorthorns to Argentina under the direction of Secretary Harding of the American Shorthorn Breeders' Association, an order has been placed with Frank Scofield of Texas by Brazilian parties for 25 head of tick-immune bulls for shipment by June 10th. The price is \$500 a head. This is the largest individual foreign order ever placed for bulls from south

of the quarantine line. Mr. Scofield is drawing upon the various southern herds to complete the order. In addition, Mr. Scofield has sold a yearling bull to Casa Alemana, governor of the Atlantic Coast of Nicaragua, and two yearling bulls to Henry F. Springer of Nicaragua; a yearling bull and heifer to Señor Manual Estrado, president of Guatemala.

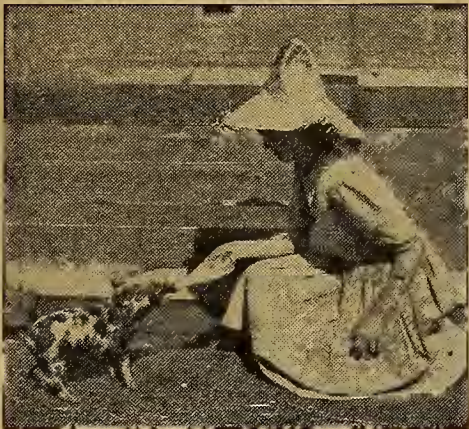
Another Argentina shipment includes twenty Shorthorn bulls of varying ages, selected by W. A. Forsythe & Sons of Missouri, for J. N. Foley. This shipment is now en route, and is due to arrive at the destination in August. This is a very important consignment, including bulls of high individual merit and representing the progeny of the most noted sires of recent times. The selections were made with exacting care, and the character of the shipment can scarcely fail to strengthen our business relations with the Argentina breeders.

It is apparent that our southern neighbors are looking to this country for breeding stock. There is an unlimited field, and we have an advantage now over breeders of the British Isles due to the European war conditions.

Shotes Eat Acorns

By A. J. Legg

IN REPLY to "A Reader" as to whether shotes seven months old should be allowed to eat acorns, I am at a loss to know why anyone should think they would eat enough acorns to injure the flavor of the pork. I have had experience with hogs eating acorns all of my

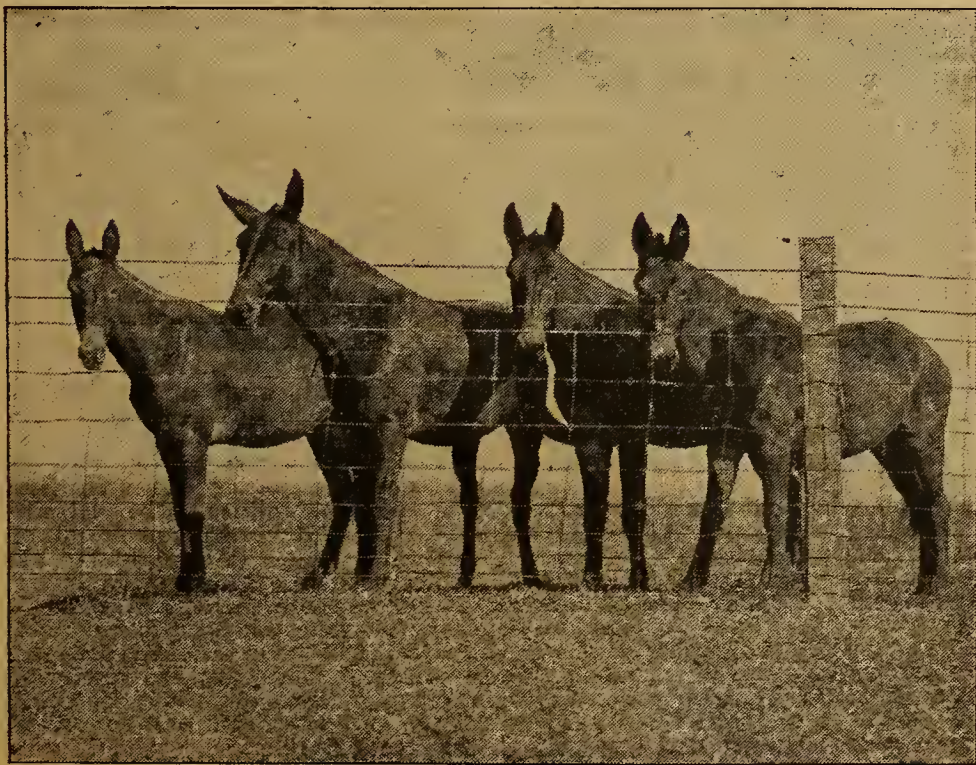


A little extra care does wonders with runt pigs

life. This year most of my hogs got fat on the acorns and chestnuts without any corn, and the flavor of the pork is as good as if they had been fed corn.

When there is a large crop of beech-nuts and the hogs are fattened on these alone, the lard is so thin that it will not harden, though it is good; but such is not the case when acorns and chestnuts are used for fattening. My advice to "A Reader" would be to allow the shotes to eat acorns alone so long as they last; then, if the shotes are not fat enough, feed corn. The hogs will fatten as fast on acorns alone if they get plenty of them. I have found that a little extra care does wonders with runt pigs. The children will take an increased interest in the live stock if they are given the runt pigs.

A WYOMING man makes alfalfa meal with a threshing machine. He fixes it so that the meal will go straight through. If you've ever seen it done, write us about it.



Raising from one or two to several mules every year has greatly increased the income of many corn-belt farmers

Send for new "Money Saver" Booklet.

Barrett Money Savers for Farmers

IF you want steady, sure profits, watch the little leaks in your purse. A stitch in time saves nine. Many a sturdy fence has to come down for want of preservative at the right time. Many a house has to be replastered because that little leak in the roof grew big. Many an order goes to manufacturers of farm implements because the older implements weren't painted. And so it goes. A little expenditure here, a little one there, until you are surprised at the sum on the debit side of your ledger.

Now look at the articles in this advertisement. Then ask yourself if you haven't lost money in the past for lack of just such things. We are appealing to the common every-day horse sense of the American Farmer. And he's famous for just that quality.



Everlastic Roofing—In Everlastic Roofing we offer a thoroughly reliable "rubber roofing" at very low cost. It is easily laid without skilled labor and is famous for its wearing qualities. Wherever you have steep roofs, use Everlastic and do away with leaks. Water, wind and weather are defied by this roofing. The best value you ever saw.

Elastigum—Little repairs can easily run into money unless you have something like Elastigum on hand. A tough, adhesive, elastic and waterproof cement that will save you money and worry in a hundred different places. To reline or join gutters, use Elastigum. To seal leaks of any kind use Elastigum. To stuff cornices or renew chimney flashings, use Elastigum. You will find it makes repairs not only cheap but easy and permanent.



Creosote Oil—Barrett's Grade One Creosote Oil is the most

effective wood preservative on the market because it penetrates more deeply than any other. And it's practical for you because you can apply it by the dipping or brushing method instead of the difficult and expensive closed-cylinder method. Barrett's Grade-One Creosote Oil will make an ordinarily good fence post last 20 years. Use it on all your exposed woodwork. It makes exposed surfaces rot-proof and moisture-proof.

Tylike Shingles—Would you like your roofs covered with a roofing whose exterior surface is pure, natural slate? Then use Tylike Shingles. A fire resisting, waterproof roofing of rare beauty. Made in red or green without artificial coloring. The handsomest and most satisfactory roofing in your neighborhood will be yours if you use Tylike Shingles. You lay them just like slate. They look better and cost less than slate. Quality, durability and economy all rolled into one.



Everjet—Black as Egypt and much more useful to you—that's Everjet Elastic Paint. This glossy, permanent, elastic paint is a triumph. Indispensable as a roof paint and covering for exposed surfaces. Make your roofs permanently weather-proof and waterproof with Everjet. It's a wonder. It clings to metal surfaces regardless of temperature. It never peels or chips. Positively insures against rust.

Sold by good dealers everywhere.

Creonoid—The first step toward having healthy, profitable live stock is to keep them free of vermin, lice or flies. Barrett's Creonoid, Lice Destroyer and Cow Spray will do this better and more surely than any other animal antiseptic. Just spray your cattle lightly with Creonoid and watch the difference. No flies or mites will bother them. Put some in the cracks and corners of the henry woodwork. No more mites to make nervous, poor laying hens. Try it in the piggery.



Send for new "Money Saver" Booklet.

The Barrett Company



New York Chicago Philadelphia Boston St. Louis Cleveland Cincinnati Pittsburgh
Detroit Birmingham Kansas City Minneapolis Salt Lake City Seattle Peoria
THE PATTERSON MANUFACTURING CO., Limited Montreal Toronto Winnipeg
Vancouver St. John, N. B. Halifax, N. S. Sydney, N. S.

Seed Wheat Read's Vermont. New variety. 56 bus. to acre. Write for circ. G. A. Read, Charlotte, Vt.

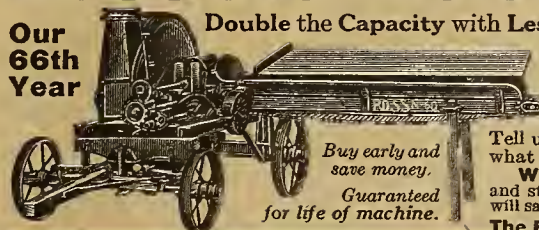
This Car GIVEN and the Agency for your Territory
5 Passenger—26 H. P. Electric Lights and Starter—Demountable Rims—Non Skid Tires in Rear—Fully Equipped. A wonder car and you can get one without cost. Write now for full information. Learn how you can get this car without cost and make big money in the automobile business. Don't delay—the offer is strictly limited. Write at once. A postal will do. Address me personally. Ralph Birchard, Pres.
Birch Motor College, Inc. Dept. 870, Tower Bldg., Chicago

AGENTS to sell men's Hats Direct from the Factory. Send for catalog P. S. & G. Hat Manufacturing Co., Morristown, N. J.

Delivered TO YOU FREE
1917 Model
A sample 1917 model "Ranger" bicycle, on approval and 30 DAYS' TRIAL. Write at once for large illustrated catalog showing complete line of bicycles, tires and supplies, and particulars of most marvelous offer ever made on a bicycle. You will be astonished at our low prices and remarkable terms.
RIDER AGENTS Wanted—Boys, make money taking orders for Bicycles, Tires and Sundries from our big catalog. Do Business direct with the leading bicycle house in America. Do not buy until you know what we can do for you. WRITE TO US.
MEAD CYCLE CO., DEPT. H-83, CHICAGO

ROSS Silo Fillers for Gasoline Engine Power

Our 66th Year



Double the Capacity with Less Power and considerably Less Speed.

We make Silo Fillers of extra large capacity to meet the special requirements of all silo users. These machines are specially designed to be operated by popular size Gasoline Engines—6-8-10-12 and 14 H. P.

Tell us what your power is and we will advise you what size Ross Silo Filler you require.

Write for Our Special Proposition Today and state if you intend to buy this year. Early orders will save you money.

The E. W. Ross Co., Box 119, Springfield, Ohio

DO YOU WANT A JOB?

If you do and are willing to give earnest attention to it we need you. This is not a proposition for triflers who answer every advertisement they read, but a splendid opportunity for the man who wants to earn

\$100 to \$150 a Month

The work is pleasant, healthful and inspiring, but requires men of tact and perseverance. If you are that kind of a man, write at once.

Address

Agents' Bureau, Farm and Fireside, Springfield, Ohio



Cement vs. Wooden Hotbeds

By Walter Ramsdell

WHEN I began market gardening I constructed my hotbeds with two-inch planks for the form or frame. After a surprisingly few years this planking had become so decayed that I had to replace it.

This time I treated the planking with creosote before placing, yet in another few years they were likewise rotted out. I then decided to try making the frame of cement.

I began with but one that fall, desiring to see how it worked before making all my hotbeds of it.

That first year I began to discover my cement hotbed frame had other advantages over wood than merely its greater durability. In it I can grow plants right up to the very edge of the bed, whereas with plank walls the edges of the bed always dried out faster, causing the plants there to be backward and not as thrifty as in the rest of the bed. Furthermore, the plants not only develop more uniformly but are more robust than those grown in beds having plank frames. Then, besides retaining the moisture much better, the cement-framed beds also hold a uniform temperature much better than the wood-framed ones.

As to durability and relative cost I cannot see but that mine are just as good as when first made—eight and nine years ago. They cost in both labor and material \$3.10 each, as against an outlay of \$2.15 each for wood frames that lasted but four to six years. Present indications are that these cement frames are good for one's lifetime. The walls are from two to two and one-half inches thick.

In this section truckers generally build or fix up their hotbeds and greenhouses during the slack period in late August, and this is a particularly favorable time to make these cement frames, as the ground is then thoroughly settled and compacted and there is little likelihood of trouble in placing the cement on such a firm foundation of soil.

Speeding Up the Sprayer

By R. E. Rogers

FOR the commercial grower of potatoes and other like crops, where the acreage permits of it, there is nothing that will quite take the place of a three or four row horse-drawn power pump sprayer.

But for the smaller grower who raises only an acre or two of potatoes one year and perhaps less the next, or according to his rotation needs, there are substitutes which serve the purpose very well.

I have figured out a pretty good substitute for a sprayer at a lot less cost, and save the storing of an extra machine.

We have a regular barrel sprayer of the best make that we could find,

equipped with hose and nozzles. By using an old cart frame and attaching a tongue from a discarded bob sled I have a carrier on which to set the barrel and pump. A little figuring showed me how to use one-half inch iron pipe and elbows as the picture shows to carry the spray to each row. Three rows three feet apart are covered at a time by this plan.

Two extra nozzles were bought; the third was the one used for the regular orchard spraying. The additional cost of this outfit was for two nozzles, nine feet of pipe, and three elbows. The other things are around a lot of farms, but are seldom in use.

One man can use this outfit pretty well, but the best work is done when a boy sits on the cart and holds the three nozzles exactly on the rows. Then the driver doesn't have to watch so carefully, and can pump up a better pressure.

Chafers Have Sweet Tooth

IT HAS been found that sweetening arsenate of lead solution with molasses or glucose will encourage the rose bug or rose chafer to eat the poisoned leaves. At least five pounds of arsenate of lead paste and one gallon of cheap molasses to 50 gallons of spray material will be required to kill all of the rose bugs.

These insects will stand more poison than almost any other leaf eater. No delay should be used in spraying the rosebushes after the first bugs are noticed. Where roses are grown under clean culture there is less opportunity for these bugs to multiply.

It is not too late to set a good long row of celery for late fall and winter consumption. If you failed to plant seed, better spend a few dimes for some plants. He who cannot eat celery every day or two next fall and early winter is to be pitted.

It is good economy of time to fight the late crop of weeds in garden and truck plots to prevent the ground from being fouled with weed seed this fall, which must be fought next year. A half day now in this fight can save days of labor next summer.

THE late-planted sweet corn, beans, turnips, beets, carrots, etc., should be thinned to a lighter stand than the earlier-planted. The shorter days and cooler nights ahead will require more chance for the sun to do its work.

Too many suckers allowed to grow from the roots of the raspberry hills will take too much of the strength from the plants that are to make next year's crop. Allow one or two more canes to grow than will be needed, for fear of accident to some of them. Then break off all remaining sprouts that start, close to the ground.

PORTIONS of orchard sections of several Central States where fire blight was so wide-spread and serious last year indicate but very little or no trouble from this fungous disease the present year.

HAVE the tips of the blackcap raspberry canes been bent down to the mellow soil and fastened with a stone or crocheted stick? Better make sure of enough new plants to fill the gaps in the arid plot or to set a new one. Next spring you may have to buy several dollars' worth of plants that now can be had for a half-hour's attention given to the matter.



Crops and Soils

Tractor Harrow Outfit

By Raymond Olney

THE experience of those tractor owners who have been successful in their power-farming operations has been gratifying. They have found so many more applications for mechanical power than they had expected before getting their tractors.

A typical example is that of a farmer in Vermillion County, Indiana. Shortly after he began using his tractor he conceived the idea of utilizing its weight as a roller. He accordingly made a concrete roller wide enough to cover the strip between the drive wheels. In preparing the soil for seeding he hitched this concrete roller directly behind the



With a tractor you can haul a variety of implements at one time, thereby taking advantage of favorable soil conditions

tractor, and, following the roller, he hauls, in tandem arrangement, a double-disk harrow, a two-section peg-tooth harrow, and a light steel roller.

This makes a very complete and effective outfit for preparing the seed bed, especially if the ground is inclined to be dry and cloddy. The weight of the tractor and concrete roller pulverizes the soil and packs it. Then the disk harrow, smoothing harrow, and light roller following close behind works this soil into a fine, compact seed bed—in ideal condition to receive the seed.

This man says that with this arrangement of tools he has found no ground so cloddy but what it has been possible to make an excellent seed bed out of it.

The Profitable Crop

By P. C. Henry

"MEN who have been growing oats for grain have been losing money," we are told by experts who have investigated conditions in Chester County, Pennsylvania. I have found the same thing to be true in our section, so I have been cutting oats for hay rather than to harvest them for grain.

Last spring we had frequent showers which made the oats come out fast, so that much of the crop was five feet tall. Hence, the six-acre piece I had in oats turned off much hay, and fine hay it was. While I did not weigh it, I estimated it at something over 12 tons, worth \$20 a ton baled, here in our section. I kept a record of the cost per ton for the oats hay, and found it was about \$1.75 a ton. I baled and sold about half, retaining the balance for my own use. I do not believe it a good plan to sell much hay from the farm. Practically all the roughness should be fed animals on the farm, while cream, butter, or the finished product only should be sold.

I believe that each farmer should keep a cost record of every crop grown, so that he may know which crop, if any, is produced at a loss. Then as soon as he learns which crop is unprofitable, he should cut out the unprofitable one and grow something else in its place. We farmers are in the same position with the manufacturer, who must keep an exact record of cost and production. Otherwise he could not know on which article he is making a profit, or perhaps losing money on another article. It is

useless for us to continue to raise crops that our fathers have raised, if conditions have changed and we now lose money on the raising of such crops. Leaks of all kinds must be looked for on the farm.

Phosphate for Wheat

By Carlton F. Fisher

LAST year a neighbor whose wheat field is in sight of my house used a high-grade acid phosphate at the rate of 200 pounds an acre on a part of his field; the rest of the field was not fertilized. It was a favorable location for wheat, and the soil was good. On the fertilized part of this field the wheat ripened evenly, and from a week to ten days earlier than where no fertilizer was used. There was also as much difference in the filling of the wheat in favor of the fertilized part as there was in the difference in time of ripening.

For the past few years institute lecturers have advocated only an acid-phosphate fertilizer with a systematic crop rotation in which legumes are depended upon to keep up the nitrogen supply in the soil. The people have gradually come to this plan, and, on account of the high price of wheat, they have grown more wheat in the past two or three years.

Acid phosphate was the only ferti-

lizer used for wheat for the last year or two by nearly all of our farmers. In several instances the yield to the acre was 25 bushels or more. Many farmers grew from 14 to 18 bushels an acre last year. The experience of wheat growers generally in this part of the State is that it is useless to attempt to grow wheat without fertilizer.

A neighbor spread a thin coat of stable manure over his wheat some time after sowing, with good results. Manure used in connection with acid phosphate on soils deficient in humus and nitrogen gives excellent results. Wheat grown with an acid phosphate alone should always come in a regular rotation in which legumes are grown as a part of the rotation, and there should be a sod to turn at least once in four years. Otherwise the humus supply will run low and the nitrogen supply will also become exhausted. Lime used on wheat should not be expected to take the place of the fertilizer, but it is found to benefit the wheat and also to be a great help in getting a stand of clover.

Sudan Grass a Sorghum

MOST of the earlier accounts of Sudan grass failed to make clear that this new crop is nothing more or less than a fine-stemmed, non-saccharine sorghum. It has most of the characteristics of the ordinary sorghum, and its requirements as regards soil and climate are similar except that the Sudan grass differs from sorghums by maturing earlier and having such fine stems that it is readily cured into hay.

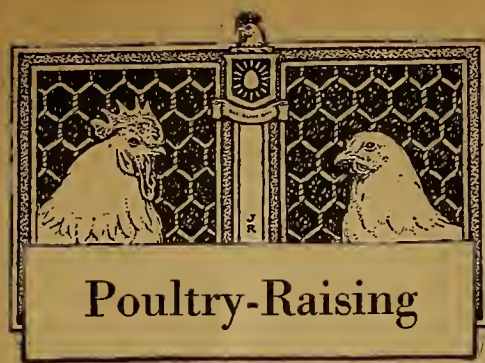
Experiments made at the Kentucky State Station in 1915 produced a crop of eight tons per acre of dry hay in two cuttings. This exceptionally high yield was made possible by unusually fertile soil and good culture. The plots were drilled about the middle of May, using 20 to 25 pounds of seed to the acre, seeded with an ordinary grain drill.

The first crop was cut when the Sudan grass was fully headed, and the second crop in time to avoid the first frost.

Where Sudan grass has been grown for two or three years it is the opinion of the growers that it will largely take the place of millet and sorghum for fodder purposes, and also be valuable as a green fodder to cut for supplementing pasture.



A good home-made potato sprayer was made from an old cart, a sled tongue, a barrel, and a spray pump with hose and nozzle



Poultry-Raising

Make 'Em "Walk the Plank"

By E. L. Vincent

ONE of two things should be done with hens around molting time. One is to let the older hens go before they fairly get to the time for shedding their feathers. They have now laid out their litter and must have some time to get through their "sick" period, during which they bring in nothing and keep eating. Every hen that is getting along in years should walk the plank, right now, unless she is specially valuable as a breeder. If we would sort our flocks over and do this early, we would be a good deal better off at the end of the season.

For the younger birds a different course must be followed. The one great thing is to get the hens back to laying after the molt as soon as we can, and have them in good physical condition. For that reason our treatment must not be so radical, as some advise, but natural and steady. If you watch a molting hen you will see that she is inclined to be weak and less vigorous than formerly. If she is not really sick, still she is "under the weather." This is because of the drain while losing the old plumage and growing a new crop of feathers.

Begin the treatment by cutting down on the food, especially the heavy, hearty food, for a few days. Meanwhile give the hens all possible chance to roam around at will. It may take some coaxing to get them to do this, but it is better for them than to dump about in the houses. The more the hen stirs around, the healthier she will be.

About the same ration may be given during the period of molting that is used when the hen is laying eggs regularly. But as the molt goes on, it is a good plan to add some oil meal, which enters into feather construction quite largely. Ten per cent of oil meal in a mash mixture, increasing to twice that, will do nicely. Watch the droppings and act accordingly. Don't give drugs; they are dangerous and may lead to trouble. Sunflower seeds are better than medicine. Be kind and patient with the molting birds.

THE Arkansas Egg-Laying Contest has brought out the fact that one pen of hens has laid 522 eggs, the total weight of which is 969 3/4 ounces. Another pen is credited with 514 eggs, which have a total weight of 1,054 1/4 ounces. This shows that the fairer way of estimating production would be by the weight of eggs produced in a given period.

Watering Outfit

By A. F. Irwin

A POULTRY-WATERING outfit of this kind insures fresh, pure, cool water without danger of its running short when midsummer heat is greatest. The barrel needs filling with fresh wa-



ter only two or three times a week, and the faucet adjusted to allow just enough water to drip to keep the trough full.

By putting a few quarts of ground limestone in the barrel the water will be kept sweeter and the dilute lime solution will be of benefit to the birds.

A Dose for Hawk Thieves

AN EFFECTIVE remedy for destroying chicken-killing hawks is to thoroughly mix one-eighth ounce of strychnine in a five-cent size bottle of mucilage. Apply a drop of this poisoned mucilage to the top of each chicken's

head after dark, and sprinkle dry dirt over the mucilage to absorb the moisture. The first trial of this remedy made in a North Carolina Experiment Station test killed eight hawks.

Another similar plan is to mix a little nux vomica in the mash fed to chicks. This drug does not kill the chicks, but hawks eating the chicks thus fed will be so sickened—and sometimes killed—as to prevent their return for more poultry during the entire season. The first-mentioned remedy has proved most effective since chicks sometimes refuse to eat the mash in which nux vomica has been mixed.

A GOOD way to learn how well or how poorly chicken houses are ventilated is to step inside and close the door early in the morning. Then note the condition of the air. If there is a strong smell of ammonia and a "chickeny" odor, the birds can't make good housed in that way. Wire netting is better than glass or windows in hot weather.

Armor-Plate Chicken Coops

By B. F. W. Thorpe

THERE is a demand for an inexpensive rat- and weasel-proof coop for hens with broods of young chicks. The coop pictured is sold by poultry supply houses, and is made of all-steel material, including the door, which can be fastened with padlock. The brood of about 25 chicks with the hen, pictured, appeared to be thriving. The hen was tethered to the coop by a string fastened to her leg. The chicks had the run of a good clover range, and at the time the picture was taken were about two weeks old.

The objection that seems pertinent against this form of metal coop is its small size (about 18x24 inches and 18 inches high) and insufficient means for ventilation after the chicks grow larger.



Chicks when confined in these metal coops are safe from rodents and animal marauders, but a metal house quickly becomes cold on chilly nights, and is just as much too warm when the hot sunshine strikes it in the daytime. Neither would it be difficult for a chicken thief to carry off the locked coop and the brood on account of its small size and light weight.

A Three-Year Egg Contest

NEW JERSEY is planning for a new kind of egg-laying contest and will appropriate \$3,000 annually for the maintenance of the contest. The contest will begin November 1, 1916, and close October 31, 1919.

In this three-year contest each entry will consist of a pen of ten pure-bred pullets and a cockerel. With the use of trap nests careful records of the egg production of each female bird and of her progeny will be kept. From these records the investigators expect to be able to determine some of the important principles governing breeding and inheritance in poultry, particularly as they apply to egg production. Competition is open to all poultry raisers throughout the world. Besides Dr. J. G. Lipman, director of the New Jersey Experiment Station, and his poultry experimental workers, there will be an international advisory board of sixteen men prominent in poultry work, representing Canada, Connecticut, Maine, California, and New Jersey.

MAKE a trial of colonizing the developing pullets alongside the corn and stubble fields. The insects, tender weeds, and clover will furnish nearly half their food requirements for several months. A few dollars invested in poultry wire for temporary yarding around the colony houses will be well spent.

MAKE sure of plenty of shade for the old poultry stock, as well as the chicks, even as late as September. Stock that has been laying for eight or nine months is more or less reduced in vitality. The hot August and September sun is apt to induce heat prostration, or unnecessarily lower the vitality of the birds.



Sunday Reading

The Broken Habit

By John E. Dolsen

WE FACED each other in the blackest night,
My other, baser self and I;
And grappled through the hours in deadly fight;
For one of us, we knew, must surely die.

And though I was the victor in the strife,
I bear the marks of cruel pain;
And evermore I drag with me through life
The body of the self that I have slain.

Keeping Our Grip

By Aubrey Fullerton

OVER a news item in one of the Western papers appears this heading: "He Had Lost His Grip." It was the story of a young man who had fallen into evil ways in the East and had gone West to try to pick up, but had failed. He had lost his grip. He tried to take hold of life with a firmer and truer grasp, but he had lost his power to keep a hold, and so his career was another record of failure and misery.

It is a bad thing to lose one's grip. It means that, through one sin or another, one's power to grapple with the serious work of life is interfered with and broken. Men without a grip are men without character, and character is lost through sinfulness. It never pays to go into the pleasures of sin, however attractive they may be, for the losing of one's grip on life is too heavy a cost to risk for any passing pleasure. We can keep our grip only as we keep clean and true.

Darkest Just Before Dawn

By Orrin Edson Crooker

THE darkest hour of the night is said to be that which comes just before dawn. When John Wesley Powell, the explorer, was endeavoring to make the passage of the cañon of the Colorado in 1869—a feat never before attempted—he and his companions underwent great hardships and dangers.

At last they reached a point where to go on seemed certain death. In face of the threatened danger three of the party decided to go no farther, and attempted to make their way out of the cañon, only to be killed by Indians a few days later.

Powell and five others, however, pushed on in two boats, which were swamped almost as soon as they entered the angry waters. The explorers had anticipated this, and had planned to ride through the rapids by clinging to the boats. This was done, and all six succeeded in reaching the placid waters of the river below the falls. The very next day the river flowed peacefully out of the cañon, bearing the expedition to success.

How often in life we stop just short of success for no other reason than that our courage is overcome by the apparent impossibility of the task before us! To have pressed on farther would have meant victory. Instead, we become discouraged on the very threshold of achievement.

It sometimes happens in the midst of a great anxiety that no ray of hope or encouragement breaks across our pathway. There seems absolutely nothing to give us cheer or increase our strength. We feel as though defeat had marked us for its own, and as though life held only bitterness in the days to come. Later, as we look back, we can see that times like these were always followed by a rift in the clouds and the return of sunshine.

It needs only a stout heart and a patient spirit to weather such times successfully. "There never was a night so dark as to have hindered the coming day, nor a storm so furious or dreadful as to prevent the return of the sunshine and a cloudless sky."

Therefore, when everything seems to be at its worst, begin to expect something better. And when the darkest hour of the night throws its mantle about you, begin to watch for the light of day in the east.

THE POSTMASTER

Shook Off Coffee And Got Well.

It's so easy to shake off coffee and coffee troubles when well made Postum is served in its place.

The Postmaster of a flourishing southern town writes: "Coffee had made me a sufferer from constipation, nervousness and indigestion. Sometime ago I quit coffee and began using Postum and ever since I have been improving. My troubles have now quite disappeared."

"I attribute my recovery to quitting coffee and using Postum and have induced several of my friends to try it. You are at liberty to use this." Name given by Postum Cereal Co., Ltd., Battle Creek, Mich.

Coffee used regularly adversely affects many persons. Take away the cause of trouble and give a true, natural food-drink like Postum, and the change is usually surprising. "There's a Reason."

Postum comes in two forms. Postum Cereal—the original form—must be well boiled. 15c and 25c pkgs.

Instant Postum—a soluble powder—dissolves quickly in a cup of hot water, and, with cream and sugar, makes a delicious beverage instantly. 30c and 50c tins.

Both forms are equally delicious and cost about the same per cup.

"There's a Reason" for Postum.

—sold by Grocers.

DRY YOUR FRUIT

and Vegetables by steam in two hours on the "Granger" Fruit and Vegetable Evaporator. Cheaper than canning—Less work—No loss—Cost, \$3.50, \$6.00 and \$10.00. Send for catalog L. EASTERN MFG. CO., 259 S. 4th St., PHILA., PA.

MINERAL In use over 50 years
HEAVE
COMPOUND
CURES HEAVES

Booklet Free
\$3 Package guaranteed to give satisfaction or money back. \$1 Package sufficient for ordinary cases.
MINERAL HEAVE REMEDY CO., 425 Fourth Ave., Pittsburg, Pa.

ABSORBINE
TRADE MARK REG. U.S. PAT. OFF.

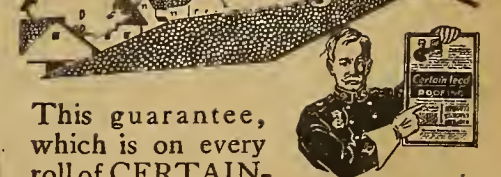
Removes Bursal Enlargements, Thickened, Swollen Tissues, Curls, Filled Tendons, Soreness from any Bruise or Strain; Stops Spavin Lameness. Allays pain. Does not Blister, remove the hair or lay up the horse. \$2.00 a bottle, delivered. Book 1 K free.

W. F. YOUNG, P. O. F., 23 Temple St., Springfield, Mass.

Sloan's Liniment

"This Nerve and Bone Liniment, clean and quick to use, gives immediate relief for pains, stiffness or lameness. Notice this—it beats anything for lameness—it is good for a big knee and will kill a bone spavin."

Certain-teed Roofing



This guarantee, which is on every roll of CERTAIN-TEED, is your protection against disappointment. Accept none that does not have this trade-mark.

CERTAIN-TEED is best for your farm buildings, because it saves you money, is weatherproof, easy to lay, looks better and is cheaper than galvanized iron, tin or wood shingles.

It is guaranteed for 5, 10 or 15 years according to ply (1, 2 or 3). This is a real guarantee backed by a business operating the world's largest roofing mills. Don't confuse CERTAIN-TEED with cheap roofing sold by mail.

Get CERTAIN-TEED from your local dealer, whom you know and can rely upon. It will save you money in the end. It is sold by good dealers everywhere, at reasonable prices.

General Roofing Mfg. Co.
World's Largest Manufacturers of Roofing and Building Papers.

Here is a cracking good sea story—the best ocean tale that Farm and Fireside has printed in several years. It's cool and refreshing fiction for these hot summer days

Aboard the Chilton Grange

The Crew of a Water-Logged Ship Mutinies in Mid-Ocean

By RALPH D. PAINE

THE Chilton Grange, a British tramp, lay at anchor in the harbor of New York. She was an uncouth, wall-sided steamer of three thousand tons, with bridge and deckhouses rising like an island amidships, indistinguishable from a hundred others of her kind that hardily roam the seas in search of trade.

Captain Nelson Sackett sat at the desk in his small cabin and tried to write a letter to his wife. The task was not so pleasant as usual. His solid shoulders were hunched forward, the ruddy, intrepid countenance was clouded, and he wiped a perspiring brow with his shirt sleeve after making several false starts with a spluttering pen.

At length he managed to say what it sorely troubled him to disclose, and then, with a readier mind, he wrote these closing words:

You and I will laugh over this when I steam into the Mersey and you are waiting for me on the landing stage with the youngster holding fast to your hand. Bless him!—that was a fine school report for an eight-year-old that he sent me at Rio. I shall have some time to play with him while the ship is in Liverpool. I am loving you, Judith, the same as always, and I shall ever be
Your fond and faithful husband.

In haste to post the letter in the next outbound mail, he sent a boat ashore with it, and went below to consult the chief engineer.

When he returned to the deck, a small tug was making for the Chilton Grange at top speed, frantically blowing its whistle to attract notice.

As it foamed alongside Captain Sackett saw standing in front of the wheelhouse a tall, smartly tailored young man with a pink and white complexion, unmistakably English, his smile frank and boyish.

Flourishing his straw hat, the young man called up:

"Not such an awful lot of time to spare—what? They told me at the wharf that you had cleared for Liverpool. I should like to come aboard, if you please."

He held a kit bag, and the two leather trunks in the bow were obviously his property. The puzzled shipmaster bluntly replied:

"You have chased the wrong vessel. Better have another try at it."

Undismayed, the debonaire young man calmly returned:

"Not a bit of it. This is precisely all right. The Chilton Grange is what I want. Hoist this luggage aboard, will you?"

"Drunk or daffy," said Captain Nelson to his elderly first mate. "A person who mistakes us for a passenger boat has violent delusions."

The voice of the young man floated up to them in amiable expostulation:

"I fancied you might recognize me. Evidently not. Stupid of me! I am Mr. Hayden Norcross, you know. My father happens to own the Chilton Grange."

Captain Sackett's mouth hung open while he stared down at the tug. Rhoades, the melancholy first mate, clung to the rail and forgot his errand. The seamen within earshot scuffled to the side to view the sensational stranger.

"You are the son of Sir James Babb Norcross?" incredulously cried the skipper.

"The only one there is, my dear man. I can't very well give you my card until you let me aboard. I intend to sail with you."

"You intend to sail with me? I don't know about that. Of course if you put it to me as an order; but—but—" The captain spoke slowly, his rather stolid features working with some hidden emotion.

Crisply, with a touch of impatience, the heir of the great shipping house of Norcross exclaimed as he made for the side ladder:

"Oh, I say, drop that nonsense! You and I will have to get on better than this. Please do as I tell you."

With a shrug Captain Sackett ordered the trunks taken aboard, and noted that they bore the stenciled name of Hayden Norcross. Again engagingly affable, the young man remarked as he scrambled to the deck: "It rather stumps you, I presume. I call it jolly good luck. It's the first time I ever booked myself in one of the governor's ships."

Uncomfortable, reluctant, the captain strove to be courteous, and said as they walked forward:

"I didn't mean to be short with you, sir; but I'm not at all anxious to carry you to England. It is not the sort of travel you are accustomed to, and—"

"Oh, I shall have to learn the shipping business when I get home," laughed the other, "and this is a useful experience. I don't mind roughing it."

Captain Sackett's voice was unsteady as he asked: "How did the notion happen to seize you, Mr. Norcross?"

"I have been globe-trotting (went out by way of Suez), having a look at the silly old world before putting my nose to the grindstone. Like a cheerful ass I neglected to reserve a room in a liner, and when I reached New York a few days ago every boat was jammed full—the summer rush of Americans. I was tired of loafing about, and by chance I spied a shipping item about the Chilton Grange—one of the Norcross freighters, by Jove!—bound to Liverpool in ballast. 'Here goes!' said I—and here I am."

Hayden Norcross gazed about him as though well pleased with his choice of transportation. The decks were scrubbed white, the brasswork gleamed like gold, and the houses had been freshly painted. Her master did his best by the steamer, although Sir James Babb Norcross grumbled at the cost and pared the bills to the bone.

"I call this ripping!" declared the young man. "Quite as if I were in my own yacht—no beastly crowd, and a leisurely voyage. You mustn't look so put out about it, Captain Sackett. I promise not to make a nuisance of myself."

"Very well, sir. You have the right to do as you like. You are inviting yourself, please remember that. I shall try my best to give you a comfortable passage."

"It is my own surprise party," was the cheerful rejoinder. "How long before we head for the open sea?"

"Two or three hours. What about sending word to your father that you are in the Chilton Grange, Mr. Norcross?"

"I shall write him at once," was the easy reply. "The letter will reach Liverpool ahead of us. What's the use of cabling?"

"I am afraid to-day's mail has closed, but there will be another sailing this week. Aye, the letter will be in England before we are. And you will be sure to mention that you asked yourself aboard and I objected?"

"Still harping on the same string!" exclaimed Hayden Norcross. "I solemnly swear to absolve you from all part and share in my voyage."

THE captain showed an odd unwillingness, but this was doubtless a natural feeling of responsibility in the case of so important a personage as the son of Sir James Babb Norcross. No rudeness was intended.

In lovely June weather the Chilton Grange left port. Captain Nelson Sackett had handled men for many years, and he appraised them shrewdly. This youngster was generous, clean, unspoiled by golden fortune. It was impossible to dislike him.

At table in the cabin, Rhoades and the chief engineer, quiet, shy men, were not at their ease in the company of the owner's son, but he could not be held blameworthy. His was an effulgent name, and the barrier of caste oppressed their honest British souls. It was singular that his presence should not have aroused their resentment, for they dumbly felt that the Norcross millions had been sweated out of the ocean-carrying trade and that the titled owner in Liverpool could afford to deal more justly with his men and ships.

The passenger's appetite was good, his digestion perfect, but the deuce of it was that he could not

seem to get enough to eat. A chap felt awkward about mentioning the fact, but if he expected to control a few dozen steamers himself some day he really ought to find out a few things. In such a well-kept ship as this short rations, and rotten bad at that, seemed confoundingly queer.

"I say, what's the program for feeding these boats?" he sang out to the skipper, who was in the chart-room. "What I mean is, how are they provisioned?"

Captain Sackett grinned. He had an unobtrusive sense of humor. Until now he had tactfully avoided ruffling the young man.

"Most of the stuff is put aboard at Liverpool," he told him, "excepting a little fresh grub picked up from port to port. The ship has an expense allowance. If a master exceeds it he goes into his own bally pockets to foot the difference."

"BY JOVE! I must speak to the governor about it," ingeniously exclaimed the son. "With so many large interests I fancy he has to leave this sort of thing to an understrapper. He won't like it, I'm sure."

"We don't like it," frankly confessed Captain Sackett. "It is hard to get men to stay in these ships. They have the name of starving their crews."

"How absurd!" and the young man began to pace the deck. "Sir James would be shocked. If you only knew him! He is the most open-handed, considerate old boy in Liverpool—always founding or endowing something or other. And in his own home—why, he can never do enough for his people."

The skipper withstood the provocation to say more. It was hopeless to try to make the son understand that the Sir James Babb Norcross he knew was not the man his shipmasters cursed behind his back.

But in the captain's silent scrutiny Hayden Norcross detected something like pity. He colored and spoke sharply.

"You think my father is responsible for this outrageous provender! I should say you owe me an apology."

"I can't quite fathom why," gravely replied Captain Sackett. "I have accused nobody. However, I like to see a man stand up for his dad."

This was the nearest they came to an issue until the Chilton Grange ran into a succession of gales, and it ceased to be a holiday lark of a voyage. Under lowering skies, over a sea gray and upheaved, she crept sluggishly eastward, her speed falling off day by day. It had not been expected that at this season of the year she would have to struggle against shouting head winds and thundering combers. June was supposed to be a halcyon month.

The Atlantic pounded the laboring steamer with gigantic blows, and across the well deck the waves hissed in frothing green floods. The crew became spent and bruised and disheartened. Sleep and rest were denied them. They damned the ship and the sea, crawling about in wet clothes, clinging to life lines and stanchions, or climbing from the fire-room to ease their burns and fill their tortured lungs with cool air.

The bonds of discipline had held them silent as long as luck favored the voyage. Now Hayden Norcross heard them call his father names to curdle one's blood. And as the weather turned even more menacing they yelled jeeringly at him when the officers were not present to check them.

Their derisive gratification because he was in the same boat with them made him wince and shiver. He tried to piece together the wind-blown fragments of what they said. His smooth pink cheek was a shade paler and his eyes were troubled as he shouted in Captain Sackett's ear:

"I can't stand much more from these filthy blackguards. Can't you put a stop to it? What are they jawing about? Am I a sort of Jonah? You might think this ship was a floating coffin when she left New York harbor."

"Perhaps she was!" roared Captain Sackett as he watched a huge sea tumble over the bows while the Chilton Grange quivered and groaned in every plate and beam.

He looked wrinkled and old as he stood braced on the bridge in his dripping oilskins.

"I tried to keep you out of it," he added. "I said all I could, all I was obliged to. But you had to play this game with me. And by what the barometer tells me God

EW



"You are the son of Sir James Babb Norcross?" incredulously cried the skipper

Almighty may take a hand in it before sundown!" His impassioned earnestness bewildered Hayden Norcross, who had not dreamed of danger. With the superb egotism of his years and station he believed it impossible that disaster could befall when he was on board. The tumult of wind and sea was terrifying, but what genuinely frightened him was the glimpse of some mystery, sinister and tragic, that had been purposely withheld from his knowledge. The captain and the crew gave him the impression that the ship had been foredoomed.

A WOMAN waited patiently in a long, long aisle of desks at which spruce clerks were busied with bills of lading, manifests, and accounts. Through the nearest window she saw the crowded waterfront of Liverpool and the jostling traffic of the Mersey. She was waiting in the hope of a brief interview with Sir James Babb Norcross. Handsome she was even when anxiety had made her haggard.

Sir James had many other matters far more important to occupy this valuable morning. His secretary explained this to the woman, but her persistence was unshaken.

At length the great man was informed that the wife of one of his shipmasters could not be got rid of. She was very quiet and decent about it. Perhaps a word or two would satisfy her. Sympathy for femininity in distress throbbed beneath the white waistcoat of Sir James Babb Norcross. Caressing his neat gray whiskers, he blandly told the secretary:

"You may admit her. I can spare five minutes. Her husband commands one of my vessels? Ah, what name?"

"The Chilton Grange," she says, sir. The steamer left New York ten days ago."

Sir James pursed his lips, and something like a scowl shadowed his massive features. The annoyance was momentary, however, and his mellow geniality reasserted itself as he said:

"The Chilton Grange? Let me see. That would be Captain Nelson Sackett. A capable master but inclined to borrow trouble."

He remained seated as the woman entered, hesitant, abashed, her cheek brightly flushed. It was an immensely audacious enterprise for her to thrust herself upon the notice of Sir James Babb Norcross. In her hand was a letter, folded and concealed, which she did not expect to disclose; but it gave her courage, and was the reason she had waited so patiently.

The ship owner graciously indicated a chair, but she preferred to stand. The sight of him somehow braced her resolution. Her shapely figure was held erect, the poise of her head was challenging, and her breath no longer fluttered between parted lips.

"Mrs. Sackett? I have not had the pleasure of meeting you, although your husband has been for many years in my employ," sonorously declaimed Sir James Norcross.

"I am Judith Sackett," she answered, regarding him from beneath black, level brows.

Her voice trembled a little, but she controlled it as she went on to say:

"I must ask your pardon for putting you to the trouble of seeing me, but I am beside myself with worry, and your clerks could give me no proper information—at least it wasn't sufficient to make my mind easy—"

Sir James stirred in his chair with an air of disquietude and found himself avoiding the gaze of Judith Sackett. He lumbered to his feet as he exclaimed:

"You are agitated, my dear woman. I beg of you to be seated. I am wholly at your service."

As though she heard him not, Judith Sackett nervously twisted the letter in her fingers and moved to a window where she leaned against the ledge. Toward the beefy, pompous shipping magnate she felt a vague sense of physical repulsion. She wished him to keep his distance.

"I came to ask if the Chilton Grange had been reported since she sailed from New York," the woman explained. "They told me in the other room that she had not been spoken."

"Which was quite correct, Mrs. Sackett," pleasantly replied Sir James. "But there is not the slightest ground for alarm. Our smaller ships of the Chilton Grange class are not yet equipped with wireless. It sometimes happens that the steamer makes the Atlantic without being once spoken. The Chilton Grange has been at sea only ten days. I am surprised that you should feel at all concerned about her."

"I am always anxious when my husband is afloat," said Judith Sackett. "It is the cross that we wives of seafaring men must bear. What I wish to beg of you is that you will surely send word to my house whenever the steamer is heard from. If I leave it to a clerk, he may forget or delay it. If you command it, I can depend upon getting the news. It will be the greatest favor in the world to me and my little boy."

Sir James coughed, fumbled with the papers on his desk, and demanded:

"What is there about this particular voyage to make you feel alarmed? A summer passage in a stanch, well-found steamer with an experienced master—why, I should not mind being along myself!"

"I have had bad dreams, dreadful dreams," she evasively returned. "A woman weaves strange fancies when her man is far away. I am not the hysterical sort, but I feel things, and they come true. You will promise to let me know? I have been tracing the voyage with a pencil on an old chart, setting down every day an average run for the Chilton Grange. She must be in mid-ocean by now. Ships should be passing her on the eastbound track. Is it foolish to ask them to look for her?"

E.W.

At last her restless mood seemed to have communicated itself to the portly Sir James. He flung out his arm in a jerky, emphatic gesture as he affirmed:

"But, my dear Mrs. Sackett, the vessel is not overdue. She is jogging along at eight or nine knots, with a voyage of three thousand miles to make. And I have the greatest confidence in your husband. I shall be glad, however, to comply with your request. The office has your address. I am at a loss to understand your fears. If they did not cause you so much real distress, I should be inclined to laugh at them, upon my word! Captain Sackett is as safe in the Chilton Grange as though he were on dry land. Have you been having any trouble with your nerves that might account for this?"

Judith Sackett was no longer able to dissemble her contempt. It blazed in her dark eyes and curled her red lips. Until now she had watchfully held her speech under restraint lest she might jeopardize her husband's interests with his employer. But the monstrous hypocrisy of Sir James Babb Norcross made her throw discretion to the winds.

He was crassly lying to her, and she knew it. Smoothing out the crumpled letter in her hand, she moved closer to the desk.

"And so you would not mind being along with Captain Sackett for this voyage in the Chilton Grange?" she cried, mocking and tempestuous. "It will go hard with him, no doubt, if he comes through safe, after I tell you the truth to your face. But can I listen to the cruel nonsense of an owner who holds sailors' lives and sailors' widows so cheap?"

Sir James looked amazed. His florid features became mottled with righteous indignation. He was about to ring for his secretary and have the woman removed, but she confronted him, beautiful and fearless.

Judith Sackett read aloud the message from Captain Nelson Sackett as he had written it to her in his cabin just before sailing from New York:

"I expected to stay here longer for repairs in dry dock, but Sir James Babb Norcross tells me by cable to proceed at once. I mailed a report to him as soon as we came in from Rio. The vessel has strained herself forward, and we had to keep the pumps going. There is eight feet of



As they swarmed about him like wolves, he shot the leader

water in the forepeak now, and we can't seem to gain on it much. The reason why the owner orders me to wait and go into dry dock in Liverpool is that the job will cost him four or five hundred pounds less than if I had it done in New York. With fair weather the Chilton Grange will be able to make the passage, although it will be slow—and you must not worry.

"The owner takes no risk on her, for the steamer is well insured, and he is going in for bigger ships which are more profitable to run. I might ask Lloyd's agent in New York what he thought of starting across the western ocean with eight feet of water in the forepeak and the pumps unable to clear it. He would order the vessel into dry dock or cancel the insurance, but I can't afford to do it. Sir James Babb Norcross would give me the sack and blacklist me in English ports. A shipmaster has to take things as he finds them these days."

Judith Sackett's voice faltered and died. She stood waiting for Sir James to answer the damning indictment. Her words had been like the tolling of a bell. Their intonation conveyed her belief that the Chilton Grange would never see port again, as though her dreams of disaster had been prompted by means more subtle and mysterious than wireless telegraphy. At this moment the great man's secretary entered hastily, a packet of letters in his hand.

"The American mail, Sir James," said he. "And you will be delighted, I'm sure, to see the handwriting of Mr. Hayden Norcross again."

"Ah, thank you," was the eager, beaming reply, the woman forgotten. "No doubt my son has written to tell me in what liner he has taken passage for home. A White Star boat, or a Cunarder, I suppose."

THE storm had almost blown itself out, and the swollen seas that reared against a leaden horizon were sullenly subsiding. The Chilton Grange rolled as though weary of the battle for survival. Captain Nelson Sackett marked how slow and heavy was her motion, her natural buoyancy well nigh gone. His first mate stood beside him, a man whom life had whipped into uncomplaining fortitude. It was part of the scheme of existence, as he knew it, that mariners should be forced to go in unseaworthy vessels to earn their bread.

"Will she last through another night, sir?" he asked without emotion.

"I doubt it, Mr. Rhoades. When she settles a little lower we will try to get the boats away. I'm hoping something may happen along to pick us off before the poor old hooker founders."

"She never had a fair chance this voyage, sir. Crippled to begin with, and luck went against her." "Right you are," said Captain Sackett, "and I feel sorry for her."

"Queer—awful queer, isn't it, sir, that the owner's son should have shoved himself aboard the way he did—and then the voyage turn out this way?"

"Strange it is, Mr. Rhoades, and perhaps not so strange. You and I believe in the judgments of God. They can overtake a man as powerful as Sir James Babb Norcross."

HAYDEN NORCROSS had climbed to the bridge and approached them unobserved. He heard the voice of Captain Sackett, solemn and devout, deliver this condemnation as one who knew whereof he spoke. White and shaking, but not with fear, the young man stepped between the two officers and cried:

"Why have you been hiding things from me ever since we left New York? What is the trouble with this ship? Is she haunted? What's this nonsense about my father and the judgments of God?"

The mate sighed and went forward, methodical, unhurried, as always. Captain Sackett laid his hand upon Hayden's shoulder as he said:

"The Chilton Grange is dropping from under our feet. I have tried to keep the truth from you because I could not fairly hold you responsible. But now you ought to know. If you come out of this alive, I want you to remember for the sake of other sailors."

"Remember what?" exclaimed Hayden Norcross, discerning that in this extremity there was no room for anything except the truth, naked and brutal.

"That your father sent this steamer to sea when he had the facts to prove she wasn't fit to go. He did it to save no more money than you fling away in a month. And jolly little he cared if we poor devils never saw Liverpool!"

"It's a lie! It must be a lie!" shouted young Norcross, but his voice faltered. "You are trying to cover up your own neglect. You have listened to the silly ravings of the crew. My God, to say such a thing as that about my father!"

From his salt-stained blue coat the shipmaster pulled out a copy of the report he had mailed to Sir James Babb Norcross and the cabled reply. Without anger he gave them to the son. The evidence required no comment. It was final, complete.

When Hayden Norcross had read it, slowly, unflinchingly, he forgot that death was so near. The expression of his face was no longer boyish.

"No wonder the men were cursing me!" he said after an abstracted silence.

"I am easing my own conscience before the ship goes under," quoth Captain Sackett. "I failed to warn you. Can you forgive me for that? It seemed like a decree that I had no right to meddle with."

"I can't hold it against you, of course," was the manly assurance. "You could have done nothing else. How long can we stay afloat? There are the boats, you know."

"Yes, there are the boats, Mr. Norcross, but only one is worth launching overside. The others are old and rotten. The paint holds them together."

Hayden winced and turned away. The captain resumed his last watch on the bridge of the Chilton Grange.

The day wore on into a misty afternoon, which curtailed the wallowing freighter from the sight of other steamers. The men were deserting their posts. The fires had been extinguished, and the pumps no longer throbbed. Armed and indomitable, Captain Sackett drove the seamen and stokers away from the one seaworthy boat.

Suddenly there raged in the more ruffianly of the crew the resolve to leave young Norcross behind to drown. Shoving Norcross into a room, Captain Sackett whirled to face the onset. They swarmed about him like wolves.

His warning shout failed to check them. With a feeling of pity, he shot the leader, and the mob broke.

Obedient and disciplined to the last, Rhoades and the second mate hauled Norcross toward the boat, unheeding his frantic protests. The mob rallied and streamed after them. Captain Sackett raced on ahead, and stood with his back to the boat, striving to repel the rush as the ship began to sink.

In the mournful obscurity of the mist there suddenly loomed the shape of a huge liner, eastward bound, which slackened way and began to drop her rescuing boats with magical celerity. The crew of the sinking tramp leaped into the sea before the suction could drag them down. Captain Sackett flung his passenger overboard and dived as his forlorn ship lunged and rolled in the closing moment of the tragedy. They fought clear of her, and were fished out by the seamen of the liner, an officer explaining:

"We had special orders by wireless to look out for you. A close shave, that."

The shipping magnate was afraid to meet his only son, and his natural joy was profoundly shadowed. Hayden shook hands, but his mood was taciturn, and he was more like a stranger until they had quitted the crowd. Then he said, grave, inflexible:

"I have sailed with a man, Father, a better man than you. He kept his crew from killing me. It was for the sake of other sailors. You can take your choice. I step into the business and change its methods—do you understand that?—or we part."

Sir James turned to gaze at Judith Sackett and her man and their only son as they passed from the harbor. Brokenly he muttered:

"I may have made mistakes, Hayden. If you think you can mend them—why, I need your help. We want no more disasters like the Chilton Grange. I—I too have suffered. Will you come home with me?"

"On those terms I will go home with you," was the verdict of the new head of the house of Norcross.

"We are advertised by our loving friends"

For your baby Use the Mellin's Food Method of Milk Modification



Rosalind A. Murphy
Washington, D. C.



Lucille Stevenson
Coshocton, O.



Margaret A. MacDonald
La Grange, Ind.



**PARKER'S
HAIR BALSAM**
A toilet preparation of merit.
Helps to eradicate dandruff.
For Restoring Color and
Beauty to Gray or Faded Hair.
50c. and \$1.00 at Druggists.

PIGEONS PAY
Better Than Chickens
Young pigeons (squabs) bring
40 to 60c each when 3 to 4
weeks old. Big demand in city mar-
kets. Each pair of pigeons easily
clear \$4 per year. Always penned
up. Very little space and money
needed to start. Free Book explains all.
MAJESTIC SQUAB CO., Dept. 10, ADEL, IOWA.

ALFALFA \$9.60 PER BU.
Best Hardy Non-Irrigated Seed 99.6% Pure
96% germination, \$12.60. Government tested. Absolutely
guaranteed Northern grown, extremely hardy. No seed
better. Have Turkestan Alfalfa; Sweet Clover; New
Timothy; grass seed of all kinds. Ask for our latest 60-
page book on growing Alfalfa, 100-page catalog and sam-
ples. All sent Free. We can save you money. Write today.
A. A. BERRY SEED CO., Box 442, CLARINDA, IOWA.

**\$15.95 AMERICAN
Upward CREAM
SEPARATOR**
Sent on Trial. Fully Guar-
anteed. Easy running, easily cleaned.
Skims warm or cold milk. Bowl a
sanitary marvel. Whether dairy
is large or small obtain handsome catalog. Address,
Box 5058
AMERICAN SEPARATOR CO., Bainbridge, N.Y.

**Only \$2 Down
One Year to Pay!**
\$24 Buys the New Butter-
fly Jr. No. 2. Light running,
easy cleaning, close skim-
ming, durable. Guaranteed
a lifetime. Skims 95 quarts
per hour. Made also in four
larger sizes up to 51-2 shown here.
It saves in cream. Postal brings Free cat-
alog, folder and "direct-from-factory" offer.
Buy from the manufacturer and save money.
**ALBAUGH-DOVER CO. (12)
2139 Marshall Blvd. CHICAGO**

HOOSIER STOVES & RANGES FREE
To try in your own home 30 days free, no matter where
you live. Show your friends. Send it back at our ex-
pense if you do not want to keep it. Hundreds of thou-
sands in daily use. Perfect bakers, efficient heaters, made
of high grade material, beautifully finished, smooth de-
sign, guaranteed for years by our Two Million Dollar Bond.
Ask your dealer to show
you Hoosier Stoves. Write
for our big free book show-
ing photographs, describing
large assortment of sizes
and designs to select from,
explaining our free trial.
Send postal today. Write
your name and address
plainly. No obligations.
**HOOSIER STOVE CO.
126 State St., Marion, Ind.**

Developing the Selling End

[CONTINUED FROM PAGE 3]

many large towns and cities is the establishment of public markets for the sale of all kinds of farm produce. Wherever public markets are in operation it is found that small productive farms are commanding good prices.

Right here in the city of Springfield, the home of FARM AND FIRESIDE, is an excellent example of getting good returns from farm products in a public market. A generation ago the growers of market-garden produce, including potatoes and small fruits, orchard fruits, dairy and poultry products, etc., got together and established a public market in a small way. Later this market was put on a business basis under rules and regulations sanctioned by the city government. Stalls and stations are rented by the year, and payment of a specified sum is made for the privilege of selling under the rules of the public market. This plan of direct sale to consumers has enabled several scores of farmers to realize very satisfactory returns from all kinds of food products, flowers, garden plants, shrubbery, and the like. The prices secured approach quite closely to those made by retail grocers. It is common knowledge that there are many farm families within a dozen miles of Springfield, Ohio, who are financially well situated, and who have become so mainly from marketing produce in the public home market.

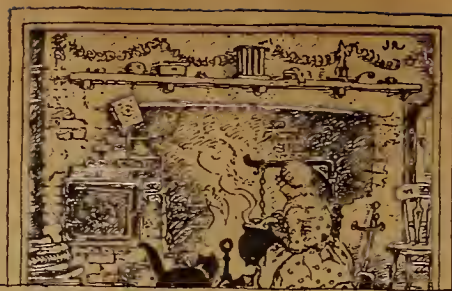
There is very good reason for this increase in direct marketing. Every year finds the consumers in towns and cities more discriminating in regard to quality and freshness of food products to be consumed on their tables. This fact is impressively shown by the willingness of housewives to go regularly to a distant public market several times each week instead of buying vegetables and fruit from grocers in their own block.

Marketing by Motor Truck

It is this better buying movement among towns and city consumers that is responsible for the growing practice among a considerable number of communities where large quantities of garden produce, small fruits, potatoes, poultry, and meats are delivered by motor truck from a distance of 30 to 40 miles, and even from greater distances, direct to public markets and hucksters.

Let me cite a few examples of direct marketing by means of motor trucks and produce wagons that have come to my attention recently. One New Jersey farmer located about 30 miles from New York City formerly shipped all his apples, peaches, pears, plums, potatoes, and garden truck to New York commission merchants. For several years he has substituted direct marketing of his products to towns within five to ten miles of his farm. His produce is delivered by means of covered market wagon, mostly in response to orders by telephone. He now seldom loads any produce that is not already contracted for. An increasing quantity of the more perishable kinds of fruit and vegetables, like strawberries, cane fruits, and green peas, are now being called for at his farm by customers who have automobiles or motorcycles. These appreciate high quality and freshness of products, and are frequently willing to call for them in person. Since making this change to direct marketing, this farmer has learned that a less quantity produced and raising his standard of quality to a high plane net him more profit than did his former practice. He finds that by thinning vegetables and fruits, so that large, attractive specimens can be used to fill his special orders, there is no objection to paying a generous price by his more discriminating consumers. This plan of direct marketing also allows the developing of fruit and vegetables to just the right stage before they are gathered.

Still another marketing improvement that is growing in favor is the consign-ment of farm products to be sold by auction under the direction of state marketing officials. This plan is only possible in large market centers, and thus far not much has been done in auctioning products direct from ship-pers except in New York City. This plan calls for consignments of apples, potatoes, etc., taken direct from the cars to the auction-rooms where they are bid off by grocery houses, hotel and restaurant buyers, brokers and jobbers. In many cases products that formerly went through the hands of three or four middlemen are now bought by retailers and large consumers. Of course this plan of auction selling under the direc-tion of state officials is not popular among commission merchants and wholesalers, and there is the strongest kind of opposition being worked for the overthrow of such direct auction sell-ing. But this plan of selling is bound to come into more general use.



Housewife's Club

In the Sewing-Room

By Lillian G. Copp

THERE is nothing that will prove of greater service in furnishing a sew-ing-room than a work box. This can easily be made at home at a trifling cost. All that is necessary is a fair-sized box with cover, for which you will need to purchase hinges, a clasp, and two handles.

Cover the box on the outside with cretonne of a design that will harmon-ize with the hangings of your room. Line the box with sateen, matching the predominating color in your cretonne. After lining, make different-sized pock-ets of the sateen, and tack onto the in-side of your box, also on the cover, with brass-headed tacks.

In the pockets keep all trimming and other sewing accessories. This leaves the box free for new material and for unfinished work.

If, however, you do not care to go to the trouble of making the box, try mak-ing a work table. Any fair-sized table will answer, but for \$3 a large-sized kitchen table, sufficiently tall and with a top large enough for cutting, can be purchased that will be unsurpassed for the sewing-room.

After selecting your table, make bags of varying sizes out of either denim or cretonne, letting the back of each bag be two inches longer than the front, to give you the needed material to tack to the ends and the back of your table.

Close each bag with ball and socket fasteners to keep your work from the dust.

A table is equal to a work box in protecting your work, and keeping all of your paraphernalia within easy reaching distance.

Mend Before Washing

By Eunice Haskins

IF YOU ever do the most needed mend-ing before washing the clothes, you will not go back to doing the mending after the clothes are washed. I learned this by sending washing away from home several years ago, and have since continued the practice, whether the washing is done at home or away. When sending the washing away, if there was a tear or a rip I noticed it was always much larger than before the garment was washed.

However, I make a few exceptions, such as sewing on buttons, or mending stocking feet if the stockings are badly worn, or very much soiled, although if it be that just a couple of stitches are needed in the stocking feet I take them, for "a stitch in time saves nine."

There are various advantages in this mending before washing. The rents or rips do not become larger, and are

easier to repair before than after wash-ing; the goods is in correct position and not pulled apart nor raveled by wash-ing. Further, if the repair is made before washing it looks better after be-ing ironed than it would if the repair were made after the garment is ironed. Another advantage is that after the ironing is finished the clothes are ready to put away and a pile of mending is not staring you in the face.

We have followed the practice of washing on Tuesday. That gives us the opportunity of straightening up the house and putting away the clothes from Sunday, getting provisions ready for Tuesday's meals, and of getting ready for the washing. On Monday all the clothes can be collected and sorted, and everything arranged to get an early start Tuesday morning.

I like a boiler of water ready to sit on the back of the stove when the break-fast is started, and then pulled to the front of the stove and heated while we are eating. The teakettle with starch water can heat also during breakfast. The reservoir on the stove can be filled Monday, and if there is a place for the tubs some water may be put in them as well as in the boiler. You can do the mending on Monday when you are pick-ing up and sorting out the clothes. Whenever you see a repair is needed you can do it as soon thereafter as you have the time.

White darning cotton is particularly desirable for mending small places in sheets, pillow cases, napkins, and table-cloths, and occasionally comes handy in mending underwear.

Various vegetables can be prepared Monday for Tuesday's dinner. Potatoes can be washed and made ready to boil with their jackets on. Beans can be cooked Monday, or made ready to put into the kettle to cook.

Household Hints

MOST BERRY STAINS can be removed from fabrics if the stained part is placed over a bowl and boiling water from the teakettle poured over it. Peach, pear, and plum stains are harder to remove, and unless the stains are fresh, boiling water has no effect on them. Such stains should be soaked for a day or two in sour milk, then spread out smoothly on a board in the sun, and a little salt dampened with sour milk put over the stains.

MRS. I. L. C., Nebraska.

FOR NEW OILCLOTH—With a brush and very hot soapy water scrub thor-oughly new oilcloth, finishing the scrub-bing with a rag. Hot dishes will not stick to it if it is given this treatment.

L. G. C., Massachusetts.

TO RESTORE WHITE CLOTHES that have become yellow, wash as usual, then soak overnight in water to which cream of tartar, one tablespoonful to a quart, has been added.

MRS. I. L. C., Nebraska.

TO SEAL BOTTLES—Take a piece of strong new muslin large enough to cover top of bottle and come down two inches or so on the neck. Melt sealing wax and pour a good-sized bit on each piece of muslin. Let stand a moment, then press wax side down on top of bottle, working wax well over top down neck. It is cheaper than corks, and no trouble in fitting.

MRS. R. M., Indiana.

Two Practical Edgings



FOR four cents in stamps the Fancy-Work Editor of Farm and Fireside will send directions for making the narrow fluted edge and Vandyke point lace.

The Children's Own Page

TO ORDER PATTERNS: Enclose ten cents in stamps or coin for each pattern, with the numbers and sizes of the patterns, and send by mail to Pattern Department, FARM AND FIRESIDE, Springfield, Ohio.



No. 3091—Baby's Cap with Separate Lining. One size. See bottom right-hand corner of page for lining. Pattern, ten cents



No. 3092—Coat with Simulated Yoke. One size. Pattern, ten cents



No. 3090—Slip with Inverted Plaits at Sides. One size. The price of this pattern is ten cents

No. 3094—Gertrude Petticoat. One size. Pattern, ten cents

No. 3093—Tucked Dress with Yoke. One size. The price of this pattern is ten cents



No. 3095—Boy's Suit with Novel Belt. 4 to 8 years. Material for 6 years, three and five-eighths yards twenty-seven-inch, with three-eighths yard contrasting. Pattern, ten cents



No. 3094



No. 3077
No. 3078



No. 3077
No. 3078



No. 3089



No. 3090



No. 3092



No. 3089—Wrapper. Perforated for Sacque. One size. Pattern, ten cents



Cap lining, pattern No. 3091

Copyright, 1916, by The Crowell Publishing Company

Recipes

TOMATO CATSUP—One bushel of ripe tomatoes, washed and cut up, stewed and strained. To three and one-half gallons of juice take two red peppers, one cupful of vinegar, seven tablespoonfuls of sugar, three even tablespoonfuls of salt, and two tablespoonfuls of whole allspice. In a piece of white cloth tie two tablespoonfuls of whole cloves and a little stick cinnamon. Put this in the juice, and boil. When the catsup is of the required consistency, bottle and seal.

MRS. E. M. K., Massachusetts.

TOMATO PRESERVES—Use either the small pear-shaped yellow tomatoes or medium-sized red tomatoes. Scald and peel. If red tomatoes are being used, remove as many of the seeds as is possible, but leave the tomatoes whole. It is not necessary to take the seeds from the yellow tomatoes, but also leave them whole. Weigh the tomatoes, and to each pound add one-half pound of sugar. Boil until thick enough. (They will have a "clear" appearance when they are done.) Can in glass jars, screwing the lids down tightly. Some people prefer a little sliced lemon added to the preserves. G. J. T., Tennessee.

SCALLOPED TOMATOES—Butter a baking dish, place in the bottom a layer of sliced tomatoes, sprinkle with salt and pepper; cover this layer with another layer of soft bread crumbs, and repeat alternately until the dish is about three-fourths filled. Put a thick layer of cracker crumbs on the top, season with salt and pepper, and bake in a quick oven. Serve hot. L. E. W., Missouri.

CHILI SAUCE—Thirty-six ripe tomatoes, one tablespoonful of sugar, eight green peppers, one teaspoonful of whole cloves, one teaspoonful of whole allspice, a piece of stick cinnamon, four onions, six teaspoonfuls of salt, one quart of vinegar. Peel tomatoes, take seeds out of peppers, chop fine. Add sugar, salt, and vinegar. Boil in vinegar two hours. Tie spices in cloth and boil in the chili sauce. Can in glass jars. This quantity will make about eight pints. J. L. F., Kansas.

STUFFED EGGS—Boil the required number of eggs for ten minutes, and place in cold water to cool quickly; then shell

and cut directly in halves, removing the yolks and mashing to a paste. Season highly with salt, paprika, and a pinch of celery salt, and add any bits of cooked vegetables that you may have on hand—beans, peas, beets, or carrots being all excellent, if drained and finely chopped. Moisten with a little cream or melted butter and fill the whites. These are delightful for picnics and lunch. L. S., Texas.

COCOANUT ICE CREAM—Put one pint of milk into a double boiler with one and one-half cupfuls of sugar. Add the grated rind of half a lemon, the pulp of three bananas, and one heaping cupful of cocoanut. Set away to cool, and when cool add one quart of cream, and freeze. E. M. B., Utah.

A LEMONADE ECONOMY—When making lemonade, run the lemon through the food chopper and your juice will be so strong that it will make twice the usual amount and have a far better flavor. K. W. N., Colorado.

CORN OYSTERS—Six ears of sweet corn, well filled out. Slit with a knife, and then grate. Add one egg, three tablespoonfuls of milk, one teaspoonful of baking powder, two tablespoonfuls of flour to thicken. Have plenty of lard in skillet, and drop the batter from a spoon, allowing each "oyster" to fry until brown. MRS. J. E. R., Georgia.

New Puzzles

Name the Animal

A part of me you'll find in rain,
A part in hail must be,
A part belongs to pain,
A part in bones we see,
A part in gleamy gold,
A part in common copper,
A part in peace behold,
A part in any topper,
Two parts are heard in sound,
And in our finals found.

Answers to Puzzles

Puzzles Printed Last Issue

A Barrel of Pork

It took Jack Sprat and his wife forty days to eat the barrel of pork.



Make Your Wife's Dream Come True

Wash day the old way is a nightmare—a bugaboo womenfolk dream of escaping some day. In your home make that dream come true now. Install a

Maytag
Multi-Motor Washer
Swinging Reversible Wringer

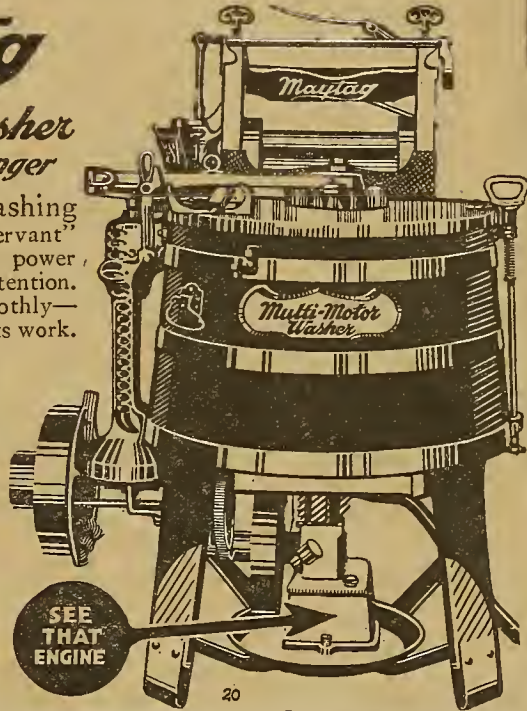
It is more than a good washing machine—it's new, superior—a "servant" that does all the housework where power should be utilized. Needs no attention. Absolutely safe. Runs quietly—smoothly—cleanly. Wonderfully thorough in its work.

Can Churn While You Wash

Its engine operates on gas—gasoline—kerosene or alcohol. It has a belt wheel that enables it to run the churn—ice cream freezer—food chopper—bone grinder—any small machine—while washing and wringing, if desired.

FREE—Send for "The Maytag Laundry Manual." It contains expert launderer's invaluable formulas on washing all fabrics.

THE MAYTAG CO., Dept. 71, Newton, Ia.
Branches and Warehouses in Principal Cities.
Dealers: Maytag proposition is different. Write.



SEE THAT ENGINE

20

The Soda Fountain

An American Institution

Did you ever stop to realize that the soda fountain is as much an American institution as the sausage, is a German institution, "French Bread" is an institution in France and the Plum pudding an English institution? And the funny part of it all is that though one seldom sees a soda fountain in Europe (and then only for the sake of attracting American tourist trade) just as soon as a foreigner gets to this country he too seems to learn to love the soda fountain.

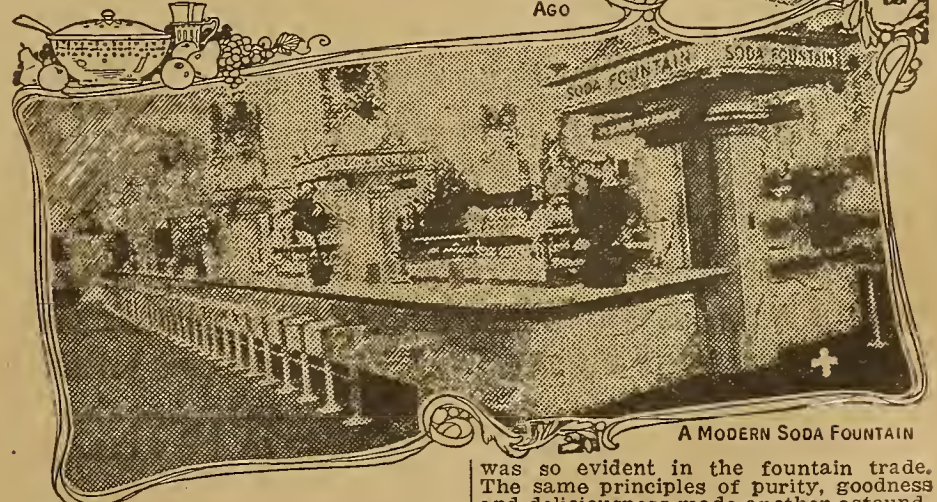
But, if you are old enough to look back a few years you will remember that only comparatively recently has the soda fountain been either so popular or so beautiful and hygienic.

You may remember what these old soda fountains looked like—what poor provision they made to supply even their scanty trade.

What has wrought this great change—what has made the soda fountain a national institution—a comfort and necessity in the daily lives of men and women—not only during the hot summer time but the whole year 'round.



30 YEARS AGO



A MODERN SODA FOUNTAIN

The answer lies in that delicious beverage Coca-Cola. Soon after its introduction at the fountains people began to ask more and more for this distinctive drink.

Along with its demand came the demand for more places that would serve it. Soda fountains sprang up everywhere, improving in beauty, neatness and attractive service. It is a fact that the part the soda fountain and all its allied industries have come to play in the economic life of the nation today is due largely to the stimulus given to it by Coca-Cola.

In the same way has the call for bottled beverages grown. In 1899 Coca-Cola in bottles was first put on the market and the same quick recognition and appreciation was accorded to it in this form as

was so evident in the fountain trade. The same principles of purity, goodness and deliciousness made another astounding record of growth possible. Bottling plants have been established all over the country to take care of this branch. Just think of it—over 90,000,000 glasses and bottles of Coca-Cola are drunk every month. So—just as much as is the soda fountain a national institution so is Coca-Cola the National Beverage.





The Goodyear Dealer's Platform:—

*To Hold Your Business, by Getting
Your Friendship, by Giving You Service*

The Goodyear Service Station Dealer starts in where the Goodyear factories leave off.

The one big aim of the Goodyear factories is to build mileage into the tires.

The one big aim of the Goodyear Service Station Dealer is to make it easy to get Goodyear Tires and Service. Thus you have maximum enjoyment and use of your tires with the least effort, time and expense.

The first element of convenience is to be able to get Goodyear Tires when you want them.

So Goodyear Service Station Dealers are located everywhere. By the sign above you will know them.

In the rural hamlets, in the medium-size towns, in the big cities — everywhere you may be or may go, you will always find a Goodyear Service Station Dealer within easy reach.

And the men in this wide-spread organization aim to earn their reasonable profit by giving real service.

They will see that you use tires of proper size; they will provide proper inflation; they will tell you whether the wheels of your car are in alignment.

They will guard against the various forms of tire abuse which you may innocently inflict.

These tire experts are not satisfied merely to sell you Goodyear Tires.

Their interest continues until you have had maximum mileage and satisfaction from them.

They all have the same purpose, the same disposition — to hold your business by getting your friendship, by giving you service.

Such men, who forego extra discounts to sell you better tires, are good men for you to deal with. This chain of Goodyear Service Station Dealers is a part of the Goodyear Policy — a time and money-saving advantage to you.

It is given to you over and above the extra mileage built into Goodyear Tires, which makes them go farther and last longer, and so cost you less in the end.

The Goodyear Tire & Rubber Company
Akron, Ohio

More Than 600,000 Copies Each Issue

LIBRARY
RECEIVED
AUG 23 1916

U.S. Department of Agriculture

FARM *and* FIRESIDE

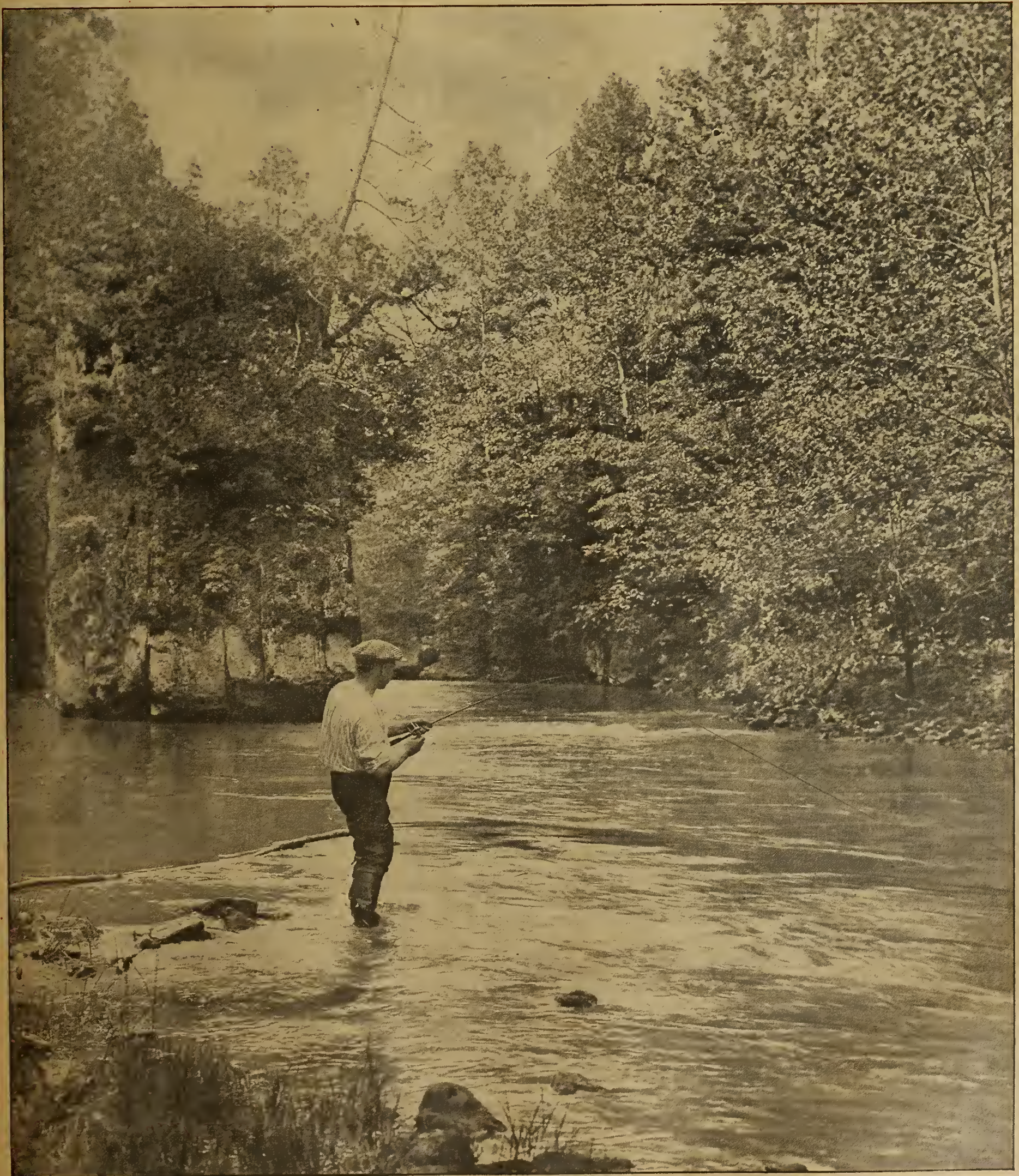
The National Farm Paper - Twice a Month

ESTABLISHED 1877

5 cents a copy

Saturday, August 19, 1916

Eastern Edition



PHOTOGRAPH BY JOHN KABEL

Where Cool Breezes Blow and Fish Bite

Amazing Things Are Happening

A German submarine cruised from Bremen to Baltimore, an astounding feat. You can trace her route by this up-to-date atlas.

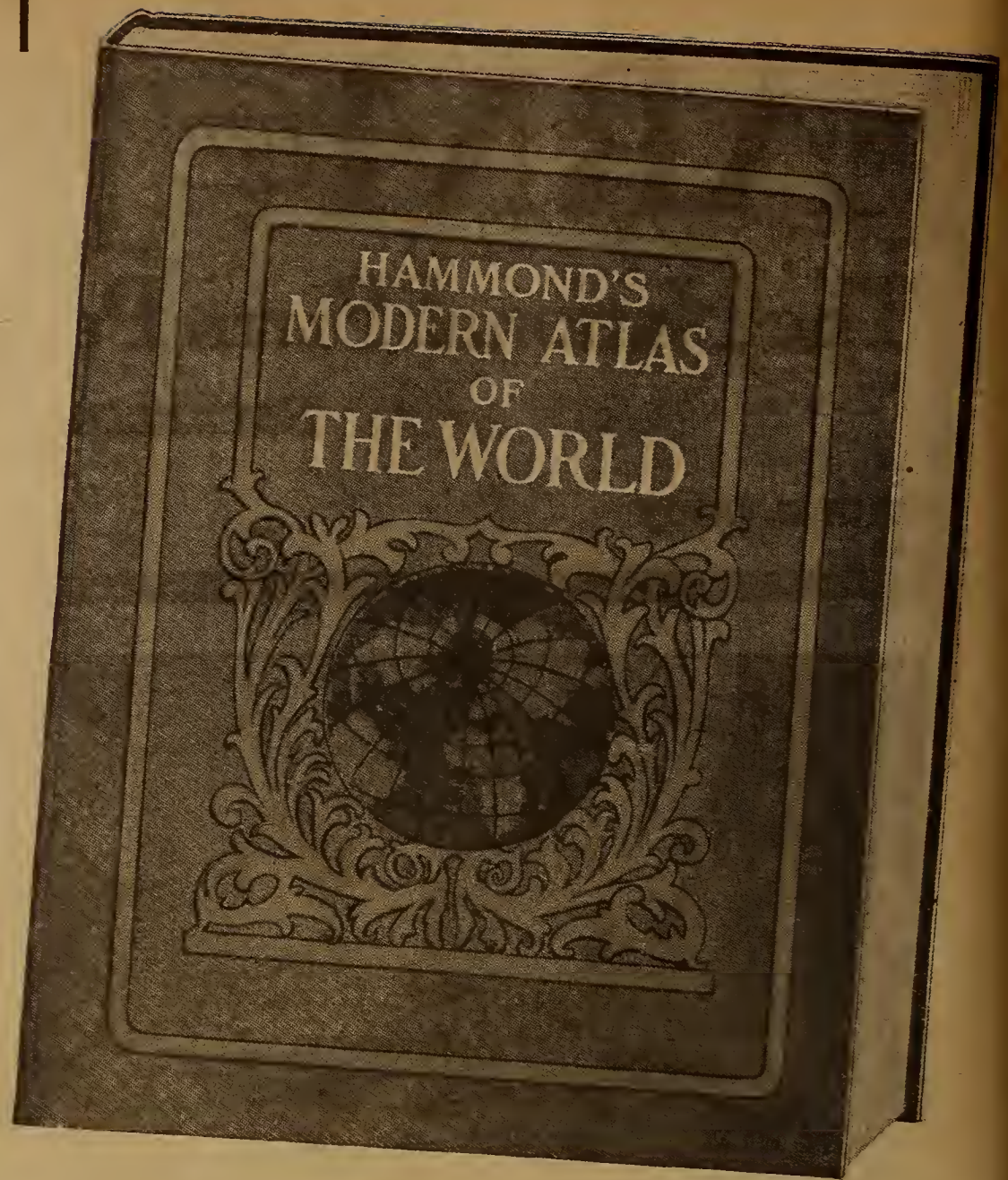
On the Atlantic Coast swimmers were attacked and some eaten by sharks for the first time, there, within the memory of man. See where by this modern atlas.

Russia is breaking through the German and Austrian lines on the East. England and France are wedging through German trenches on the West. See where by this authoritative atlas.

Shackleton, the British explorer, is now attempting to rescue some of his men lost in the Antarctic Ocean. He will establish a base on Elephant Island. Locate Elephant Island by this complete atlas.

An Army of the United States is in Mexico and on her border. Our soldiers may have to fight to save Americans. Know where they are by this accurate atlas.

Using Hammond's Atlas of the World you can follow the astounding events that are happening in all parts of the world. *Never before was your need for an atlas so great.*



Yours for \$1.00 This Invaluable Book Hammond's Modern Atlas OF THE World

===== With a Full Year's Subscription to FARM AND FIRESIDE =====

Hammond's Modern Atlas of the World is a big, handsome cloth-bound book that would sell in any city book store for much more than we ask. Its striking red cover is beautifully ornamented in silver and black. It contains nearly 200 pages, 10¼ inches by 13½ inches in size. One hundred and twenty-nine (129) pages are given over to a complete series of five-color maps covering the entire world.

These maps show the physical features—the political and historical divisions—of all territory of the world. This valuable volume also contains a Gazetteer or list of every important town in the world, and tells the population of each. It also contains a special map 20½ inches by 27 inches on Mercator's Projection, showing the areas of the earth's surface controlled by the various nations. Parcel Post maps are included. There are also colored plates explaining the solar system. To the Panama Canal Section is given sixteen full pages, describing its history from discovery to the

present day. So many and so remarkable are the features of this book that we cannot tell you all about it here.

By purchasing a large number of volumes of Hammond's Modern Atlas of the World we got them at a remarkably low price. That is the only reason we can give a copy with a full 12 months' subscription to FARM AND FIRESIDE for \$1.00.

Fill out the coupon below and mail it with \$1.00 cash, money order, stamps or check. While we have a large number of these atlases, they are going fast. Don't risk missing your volume. Mail the coupon *now*.

FARM AND FIRESIDE, Springfield, O.

**This Offer is Good Only While
the Supply of Books Lasts**

MAIL THIS COUPON WITH \$1.00 NOW
Gentlemen: Enclosed is \$1.00, for which send me Hammond's Modern Atlas of the World. Also extend (enter) my subscription to FARM AND FIRESIDE for one year. I understand that your offer is good for only thirty days, or until supply of Atlases is gone.
Name
P. O.
R. F. D. or Street
State
F. & F. 8-19.

FARM^{and}FIRESIDE

Published Twice a Month by THE CROWELL PUBLISHING COMPANY, Springfield, Ohio

Copyright 1916 by The Crowell Publishing Company

Vol. 39

Springfield, Ohio, Saturday, August 19, 1916

No. 23

Corn Machinery

Ingenious Ways in Which Inventors Get Their Ideas

By B. D. STOCKWELL

HOWEVER we may plan and figure, we have to use corn-harvesting machinery that will lighten and speed up the work or repeat last season's labor of cutting, husking, scooping, and carrying. For though King Corn is generous with us, he exacts a tremendous amount of labor.

Corn machinery is one of the most difficult classes of agricultural implements to develop. Any inventor will tell you that. Corn is the heaviest, bulkiest crop we raise; consequently, a machine to handle it must be made of good, substantial material, which is necessarily heavy and bulky. This is especially true of corn binders, pickers, and the other field implements.

But the use of roller or ball bearings, steel instead of iron, and improvements in construction have partly satisfied the demand for corn machines that are strong without being clumsy. However, it is unreasonable to expect that corn-harvesting machinery will ever be as small and compact and as low in price as machinery for handling the grains and grasses.

They must do heavy work and be able to endure severe overloads. Yet inventors are anxious to meet farmers' demands, as the following instance will show.

One inventor in the employ of a concern making ensilage cutters is big and raw-boned, and at first glance you would size him up as a roustabout or lumberjack rather than as a mechanical genius. But he is even more than this. He has the insight of a lawyer, the wits of a detective, and is one of the best experimental men the concern has. Every fall when the fair season begins he packs his grip and starts out to visit the principal fairs in the corn belt. He is wise enough to know that big gatherings of people are the best places to get new ideas.

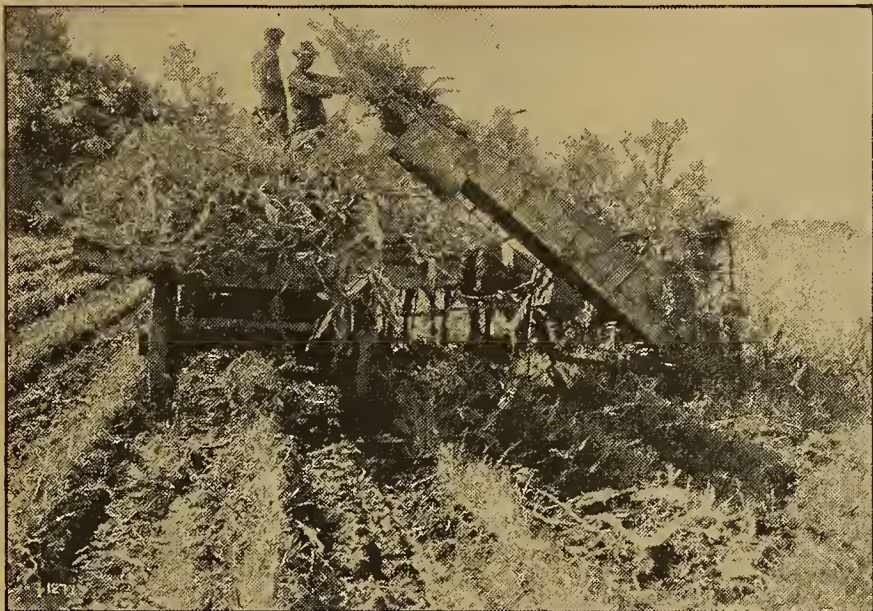
First he warms up to the demonstrator of any piece of machinery he wants to know about and finds out all the demonstrator knows. "Some of them get wise to me after a few years," he admitted, "but most of them never suspect who I am." Raised on a farm, he is quick to appreciate the good and bad points of any piece of machinery after a careful examination. Then he talks with the farmers and learns where they have had most of their difficulties. But most of all he is guided by the preferences of a man who has used various kinds of a particular machine and who is not quite satisfied. From such a man this inventor draws out the merits that a perfect machine ought in his opinion to have.

When you consider that the wisest heads talk least at public places like fairs, you will appreciate the skill needed to secure really valuable information. Finally, after he has been around all the fairs he goes back to his drafting table and puts into his drawings and patterns the practical features asked for, provided they are consistent with the price a farmer is willing to pay.

Plank Through Cutter

IN TELLING me of his latest cutter, and also demonstrating it, this man acted as though it were a child of his flesh and blood. It was hard to realize that the cutter was just iron and steel. And however much invention may be commercialized, I am sure that the love of creating new machinery will always be a stronger force than the wages the inventor gets.

"A man must deliberately try to hurt himself," he said, "with this ensilage cutter. I've designed it so that accidents are impossible." The operator



The elevator from the corn binder delivers the bundles to the wagon. The work goes quickly and nobody sweats blood

has no occasion for being anywhere near the knives. He can feed the cutter from his load if he wishes. A carrier of special design feeds the machine practically as well as a man could, and saves the work of one man.

There were also other mechanical improvements, such as six different changes of cuts, all on the machine all the time. The knives were shaped so as to shear the bundles from both sides, thus preventing crushing. The machine operates at lower speed than previous designs, doing the same work with less power. He said that to test the strength of construction he had run a wooden plank through it, and later the incident was confirmed by others in the shop and in the main office.

From facts in this particular establishment and in other large implement factories, it is obvious that manufacturers are determined to take no more chances with weak or doubtful construction. Until

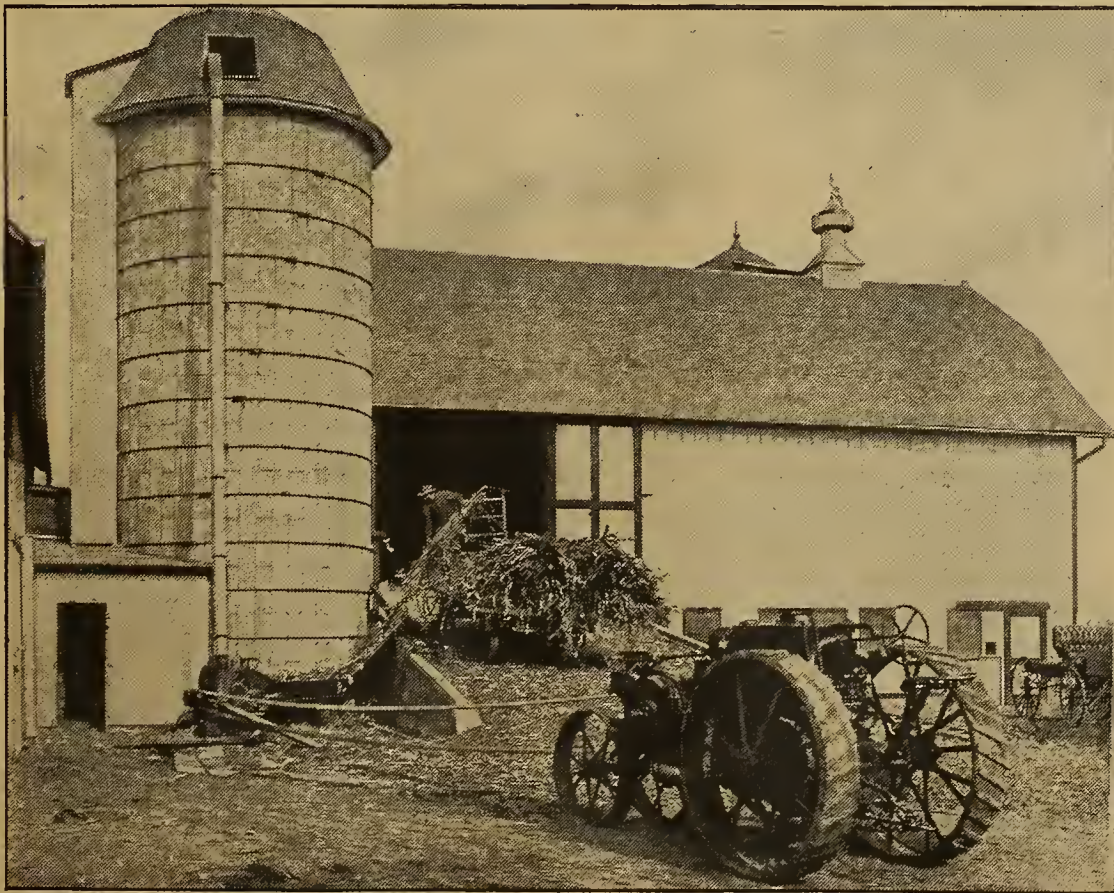
an ensilage cutter will do as good work nor as much of it as a real shredder, but simply that a man who has such a cutter can do some shredding on a fair-sized scale and at small expense.

Several cutters have as an accessory a knife grinder belted to a pulley on the main shaft so that an extra set of knives may be sharpened and changed between loads. This keeps the machine in its best working trim all the time. Another development in the ensilage-cutter business is the adoption of capacity guarantees. One concern in good standing guarantees its machines "to cut and elevate at least one ton of green corn silage per hour for each horsepower applied. There is no limit to the height of the silo."

Since a man always knows the horsepower of his engine and the size of his silo, he can select a cutter of such size as will do his work in any length of time he chooses. This particular machine will also cut up alfalfa and clover hay by means of special rolls.

The work of cutting the corn in the field has been speeded up to some extent by the use of tractors on corn binders in place of horses, also by binders with elevators which load the bundles directly on a wagon which drives alongside. Any method is advisable which harvests the corn fresh for the cutter so the stalks will not dry out, and which does away with the practice of cutting corn far in advance of silo-filling day. A modern corn binder drawn by three horses will cut down about as fast as a crew of six men cutting by hand. When drawn by a tractor the binder should operate at about the same speed, but it can be kept going more hours in the day and, consequently, will cut a bigger acreage.

Cutting corn by hand, however, still continues even on farms large enough to warrant the use of a binder. This is due to conditions which in some localities causes the corn to lodge badly, and in the South to the great size of the corn. The ordinary corn binder has difficulty in handling the stalks from 12 to 16 feet high. This has been largely overcome by an adjustment which permits the bundle to be tied in the middle, whether long or short. The band-shifting device is operated by a lever in easy reach of driver. [CONTINUED ON PAGE 10]



As ensilage cutters have become improved, fewer men are needed to run them. The one man in the picture is feeding the cutter from his load—"safety first" in the extreme

Potatoes for Market

Wisconsin Growers Improve Yields and Quality

By J. G. MILWARD

AS POTATO harvest approaches, a statement of successful methods for handling the crop becomes important; details of handling and marketing potatoes are often neglected because growers have planted too large an acreage. The methods I am about to describe are practiced on farms where potato-growing is conducted in rotation with corn, root crops, hay, grain, and where stable manure and clover become available through attention to dairying or other lines of stock-raising.

It is a significant fact in Wisconsin that a large percentage of the men who are known to raise high-quality potatoes are also successful in dairying or some other branch of the live-stock industry.

In 1914 and 1915 potato-digging operations were hampered on account of late potato blight and the rot which followed. The early frosts which killed the vines in 1915 also upset digging operations and injured the stock both as to ripeness and quality.

Potato growers aim to dig fields after vines have ripened normally, in order that the crop shall be in a clean, bright condition, free from green, soft, or badly bruised and skinned tubers.

To insure a longer growing season some Wisconsin growers are now planting late varieties early (from May 20th to June 5th). The practice of late planting to avoid the bugs is condemned because early frosts shorten the crop and interfere with normal ripening. It seems apparent also in the last two years that late potato blight has caused more serious losses on late plantings than on vines which were more nearly ripe.

The planting of seed potatoes in a strong, vigorous, sprouting condition is another recommendation of our best growers. I have in mind several growers who give special attention to this matter. An examination of their fields on July 10th of this year showed that the seed sprouted evenly, and gave an even stand of thrifty vines 8 to 10 inches high. Those fields will be in good condition to harvest, and the stock will be ripe when the harvest season comes on, from September 15th to October 10th. Advocates of late planting state that dry weather in August will damage the early planted fields and shorten the crop. But from the point of quality and maturity experience favors early planting dates for such varieties as the Rural New Yorker and the Green Mountain.

In order to be sure of strong, healthy seed stock and to hold potatoes for desirable markets, all potato growers must have suitable storage. Serviceable cellars can be made in connection with dwelling or barn basements. And special root cellars can be provided in sandy, well-drained hillside at costs ranging from \$75 to \$400. Market stock will keep in good condition at steady temperatures ranging around 38° to 40° F.

Saving a Blighted Crop

FOR special seed storage the Wisconsin Experiment Station constructed a cellar in this manner. It was built by excavating into a sandy hillside, and when finished the roof (made of concrete seven inches thick) was covered with three feet of soil. The cellar has a dead air space all around the walls. The bins are constructed with natural sand floors. There is a concrete driveway in which rails for a small truck are imbedded.

In this cellar, stock may be kept at constant temperatures during the winter at around 35° F. and will remain dormant from October until June. By opening the cellar and providing thorough ventilation, or by removing seed stock to the sorting-room provided, active bud growth will start just previous to planting (May 10th to June 1st.)

These matters are emphasized here on account of their influence on the growth and ripening of vines, and because these precautions relative to seed storage, sprouting, and the condition of the seed stock at planting time are receiving the endorsement of the best growers in this State.

Adequate storage at proper temperatures has been largely responsible for raising standard seed successfully on the Spooner Branch of the Wisconsin Experiment Station, and the same experience is reported by growers who have constructed inexpensive cellars with the labor and material available on their farms.

As stated above, late blight rot, or field frost may upset all calculations on potato harvest. Under these conditions it is necessary to get the stock out

EW

in a dry condition. Should blighted vines die early from frost injury, it may be possible to dig with very little damage from rot. Should frost hold off and the weather remain moist and cool, a very large amount of potatoes may rot in the hill.

In regions where potatoes can be handled and marketed for immediate consumption, growers are inclined to dig and market quickly. This has resulted disastrously to potato markets in the fall of 1914, as warehouses, cars, and distributing markets became clogged with rapidly rotting potatoes. Many warehouses, in fact, were forced to close down and clean up. The grower ultimately lost by the early disposal of inferior stock.

Many growers pit potatoes successfully on the field, covering with hay or four to six inches of soil, and hauling to markets from the field late in the fall. When prices range around 40 cents a bushel and yields run from 150 to 200 bushels to the acre, excellent returns are received from direct marketing from



Here is a potato field that yielded 210 bushels to the acre. The crop sold for 40 cents a bushel

the field. Under these conditions many growers do not pit, but haul directly to loading stations. Nearness to market, available storage, the labor situation, and of course the market determine whether potatoes shall be marketed direct from the field.

Serious losses, however, will result from pitting wet potatoes during bad blight seasons. Attention was called in 1914 to conditions where potatoes in a damp condition were pitted and covered with dead, blighted vines. In this natural, moist chamber the stock rotted rapidly. Dry, cool conditions check late blight rot. Moist, cool conditions favor its development.

Potato-digging machines are of course a necessity to the industry. They are being used successfully on small as well as large acreages. But an inspection in potato-growing sections during the harvest season very often shows that these machines are being used carelessly. Potato-growing still involves certain



This is a common type of potato digger used in the commercial growing sections of Wisconsin. It does good work and is rapid

hand labor which cannot be neglected. Green potatoes harvested and sorted carelessly, bruised badly, rot and spoil the looks of car shipments and lower the vigor of seed stock.

Potato sorters are a necessity both on the farm and at loading stations. Many dealers urge that our system of requiring that the bulk of sorting be done at loading stations is wrong, and that culled potatoes should be removed on the farm, where they at least have some feeding value. There is evidence that very decided improvement has been made in farm sorting outfits, and that their use is being extended in potato-growing sections of the State.

One Result of Certified Seed

LATE blight rot, common scab, black scurf, green, undersized stock, coarse, knobby stock, frosted potatoes, bruised or fork-injured potatoes, mixed varieties, all of these are causes of low quality in table stock. Some of these troubles begin on the farm and are carried along through handling channels and in transportation, and finally dumped at distributing points or upon the consumer. Other of the troubles cannot be detected on the farm nor at the loading stations, but develop during transportation. Growers and dealers are now making better efforts to avoid this dead loss.

Attention to screens will adjust size factors, but most of the troubles can be removed by hand picking only, hence the importance of such farm potato sorters as permit of close inspection of potatoes during the sorting operations.

It is important to understand what defines an acceptable grade of potatoes for the average American family, and to understand the limitations which actual cultural conditions and handling operations impose upon the adoption of this grade.

For example, I recently inspected a car of Green Mountain stock. It apparently was 100 per cent pure and was uniform in general type characteristics. The stock ranged in size from about 4 to 10 ounces. Very small amounts of common scab were found. The stock was clean, firm, bright, and ripe. The amount of waste potatoes in these sacks was too small to need mention. The stock could be used for all table purposes by any American family with satisfaction.

Incidentally I learned that the seed from which this crop was grown was purchased from one of the best growers on the state certified seed list, and that the stock was grown on a fairly small acreage. The yield was about 225 bushels an acre which indicated good soil and good cultural conditions. The stock sold at eight cents above the market.

The illustration just cited, it would seem, might have its application in the possibilities of increased profits through heavy yields of quality stock. Intensive methods on small acreages give better satisfaction than careless operations on an extensive scale.

Hauls at Less Cost

By HIRAM H. SHEPARD

MANY farmers who have never used a low-down wide-tired wagon do not know how convenient it is compared with the standard high-wheeled wagon. Nothing but high-wheeled wagons had been used on our farm until a year ago. Now we have a low-down iron-wheeled, wide-tired wagon which is in daily use.

We were prejudiced against a low-down wagon until one was bought and tried. We thought such a wagon was of heavy draft. Several trials under various loads and road conditions have convinced us that the low-down wide-tired wagon is, if anything, under ordinary conditions, of lighter draft than high-wheeled narrow-tired wagons. Only when the roads or the soil of the fields are very soft and muddy does the wide-tired wagon run harder than the narrow-tired wagon. For general field hauling, during the spring, summer, and fall, and often in winter, the wide tires assist wonderfully in preventing the cutting of ruts.

Our low-down, iron-wheeled, wide-tired wagon has proved a wonderful success in many ways. One great advantage in having iron wheels is that they are not affected by the weather, hence the wagon does not need extra care, and there are never tires to be reset in dry weather.

Perhaps the greatest economical feature of the low-down wagon is its nearness to the ground, which makes it easy to load, unload, and to get in and out of.

For the farmer who has much general hauling on the farm, such as hay, manure, wood, animals to be carried to market, and implements to be carted to fields and back to the sheds, the low-down wagon is a great saver of time and lifting.

Choice Clover Seed

How to Secure Good Color and Freedom from Weeds

By HENRY FIELD

AS WITH most everything else, first-class clover seed brings a good price, and there is always a demand for it. Discolored seed may be just as good so far as germination is concerned, but it is hard to persuade a person to give as much for it as he would for a nice bright sample. He is right too, for there is more likelihood of discolored seed being off in germination than is the case with bright seed.

Seed discoloration is caused by bad weather during harvest or by old age of seed. Both of these influences have a tendency to injure the germination quality.

Clover blossoms will not fertilize themselves. Both male and female elements are in each flower, but owing to their arrangement insects are necessary to distribute the pollen to the female part of the flower. At the time the first crop of alfalfa or red clover is blooming, insects that will work on these blossoms are few. Bumble bees, the principal insect that works on clover blossoms, are scarce that early in the season, and the Italian honeybee, the one with three bands around its body, is busy elsewhere. Butterflies are also scarce.

For this reason it is bad practice to cut the first crop of red clover for seed. An experiment was once made to determine just how important the insects were in fertilizing these blossoms. One hundred clover blossoms were covered with netting to keep out bees or insects, and on those blossoms not a seed was found. From 100 unprotected heads right beside them, 2,700 clover seeds were secured.

Cut the second crop of red clover for seed, and cut when the heads are all a dark brown. Use a mower with a buncher attachment to cut this crop. Allow it to stand about two weeks before hulling.

But if it stands too long and the weather happens to be rainy, your crop will likely be damaged. The seed on the under side of the bunch may sprout. Some of this seed may also be beaten out of the heads by the rain. If you can't make arrangements to have it hulled in two or three weeks after cutting, better stack it and cover the stack with slough grass or a good stack cover.

Very often farmers find it difficult to get a huller just when they want it. For this reason several men can profitably go in together and buy a huller to take care of their crops. How can you tell whether your crop is worth threshing or not? If you have a good stand, count the seed in a single head and if you find as many as twenty seeds you can safely figure on about two bushels to the acre. Care should be taken in making this estimate, for very often there will be parts of the field with very little clover seed in the heads.

A yield of from five to twelve bushels of seed to the acre can reasonably be expected from alfalfa. For those living in the humid sections of the country it will hardly pay to attempt a crop of alfalfa seed. The best seed is grown west of the Missouri River. There is one exception to this, and that is the seed grown under irrigation. Seed grown in this way produces a nice bright sample, but is not altogether satisfactory planted where irrigation is not practiced. Kansas and Nebraska seed is safest. Good seed is also grown in the North.

A Clover Head Yields 25 Seeds, a Dock 1,000

THE first crop of alfalfa, like clover, will not produce a heavy crop of seed. The seed pods are not as well filled and there is a larger proportion of infertile seed. Another reason is that weather conditions are not as favorable at this time. Still another reason for not using the first cutting for seed is the value of this crop for hay. The second and third cuttings produce more seed and are not as valuable for hay.

Cut alfalfa for seed when the pods have turned a dark brown. You will then find the greater proportion of the seed hard but not sufficiently ripe to shell. It is usually figured that the straw from which the seed is harvested is worth about half the ordinary crop for hay. Some farmers in western Kansas and Nebraska cut the crop with a binder and shock it like grain. Ordinarily, however, cutting with a mower with a buncher attachment is best. Allow it to cure, then stack carefully. After this stack has stood about thirty days it will have gone through a sweat and is then much easier to hull. A clover huller attachment on a threshing machine is not altogether satisfactory. It does not clean the seed well, and there is also more loss. It will pay to use a huller built purposely for alfalfa threshing.

You may use every precaution in harvesting your seed and produce nice, bright stuff of good, strong germination and yet not be able to get top price on account of weed seed. Besides, you don't want the other fellow to sell you a lot of seed containing weed

seed, hence you should not harvest that kind yourself.

Go over your fields a week or so before cutting and dispose of the weeds. Do not allow the seed to ripen. There is not a doubt but what the extra work will pay well if your crop is worth cutting. One clover bloom will contain on an average 25 seeds. One head of dock will contain thousands.

There are certain sections of the country where the required conditions for successfully producing seed of various grasses and legumes are especially favorable. These favorable districts should take advantage of this opportunity for seed production. It sometimes happens that a single bumper seed crop may bring in a most welcome addition to the farm income. From \$50 to \$100 worth of legume seed per acre is occasionally realized under particularly favorable conditions in addition to securing a good crop of fodder at the first cutting.

Handle With Care

Sweet-Clover Seed Shatters Easily

By CHARLES B. WING

MOST readers may already know some of the requirements necessary to make sweet clover grow. Plenty of lime in the soil is the key to success. With an abundance of lime these plants

will grow anywhere, in gravel, cinders, clay, or black soil, even in muck that is not very well drained. But plenty of lime is an absolute necessity.

Sweet clover is grown for both hay and seed. You can take off a hay crop and a seed crop later. But if you harvest for hay first, you must either cut with mower bar elevated at least a foot high or else use some other machine as a binder or self-rake reaper that will run a foot off the ground. The idea is to get above the lowest branches. If you cut below them the plants may die.

Do not let the plants blossom much before cutting the first hay crop. It is better for the hay and better for the plants themselves. Opinions differ as to whether a maximum

seed crop will follow when the plants have had a hay crop removed. Personally I do not know.

When about ready to cut the seed crop you will find seed that is dead ripe, some that is more than half ripe, and an occasional bloom, all on the same plant. It is impossible, as far as I can find on my own fields, to cut at a time that all of the seed can be saved. Part of it is sure to be too ripe, and perhaps will fall off before I even start cutting. Part of it is equally sure to be too green. The best rule that I know is to wait until from two thirds to three fourths of the seed is mature and the pods are straw-colored. A little of it will have fallen off by that time, and some



Using inoculated soil to start legumes. Special cultures are purer and easier to use

of it will be too green, but this is the best time I have found.

Now, remember that the seed shatters with extreme ease, so cut when the plants are damp with rain or dew. A showery day is a good time. If there are no showers, cut at night. The old-fashioned harvester or self-rake satisfies me better than any other machine I have used for harvesting sweet-clover seed. I dump the plants off in medium-sized bunches, and after cutting I never touch the plants at all except at night, until it is time to thresh, and I prefer at least a good shower in that time. The day before I thresh I examine to see if the bunches are wet on the bottom. If they are, we work at night and turn them upside down.

We use either tight wagon bottoms or tight hay sleds for hauling. We handle the bunches as if they were eggs. A man loads from the ground, and does not step on the load until he reaches the clover huller. By using great care I sometimes get six or seven bushels of sweet-clover seed per acre. With rough methods one may get quarts instead of bushels.

Soy beans can be handled much more easily, when harvesting for seed, than sweet clover. There are several methods. One is harvesting when the plants are comparatively green and when practically none of the leaves have fallen, using a self-binder and shocking in small shocks until sufficiently cured for threshing. This method has been used for years throughout the South, and by it there is no trouble, in any ordinary year, from shattering.

Cut Sweet Clover for Seed Between Showers

MY OWN method is to let the plants get as ripe as possible, with nearly all of the leaves shed, before starting to harvest. With this plan, a self-rake, and not a binder, must be used, cutting while the dew is on, somewhat the same as above described for sweet clover.

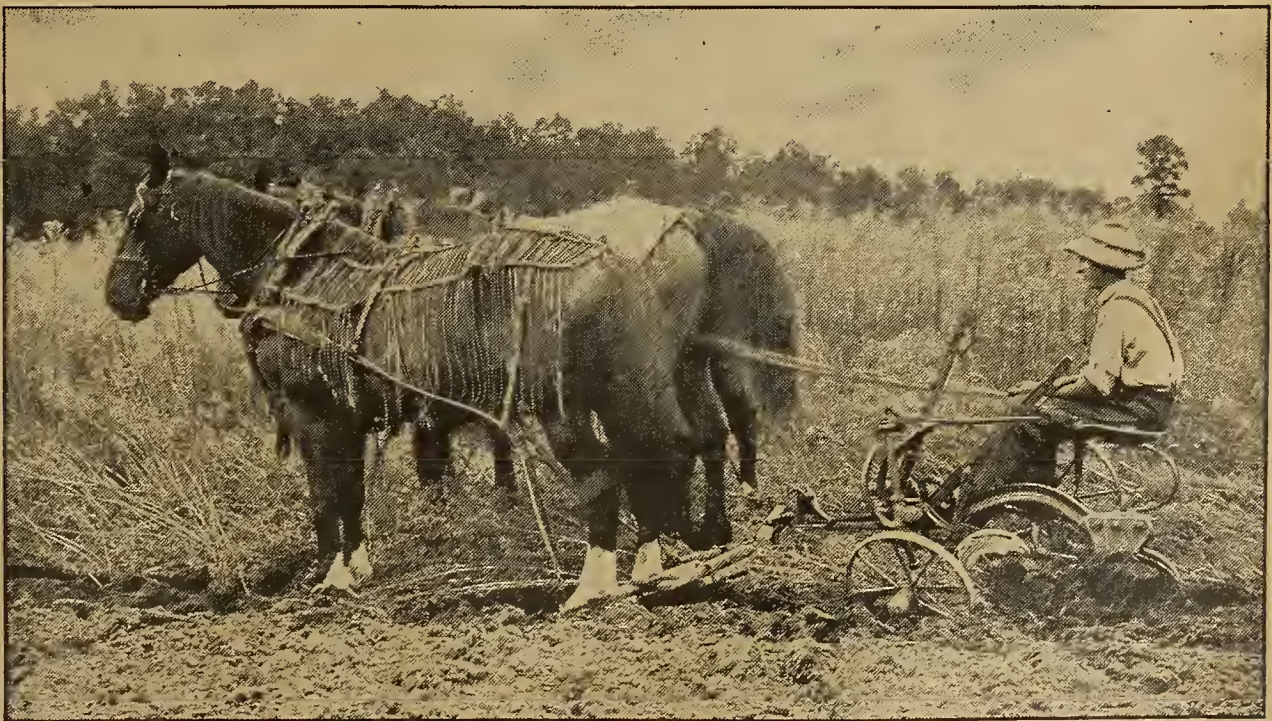
When harvesting soys that are comparatively ripe, as just suggested, I let two thirds to three fourths of the pods turn straw-colored before starting the machine. I dump them off in moderate-sized bunches, let lie a couple of days, and then shock in small narrow shocks. In about two weeks' time the soys should be ready to thresh. When threshing for seed, I use a regular bean thresher, as any ordinary grain separator splits too many seeds, even when concaves are removed.

When threshing for grain to feed, however, I should use an ordinary grain separator with concaves removed and a few boards put in, partly to take their places. In this manner the work can be done easily and cheaply, and by running some of the grain through a good cleaner enough of the splits can be taken out so that you can save your own seed.

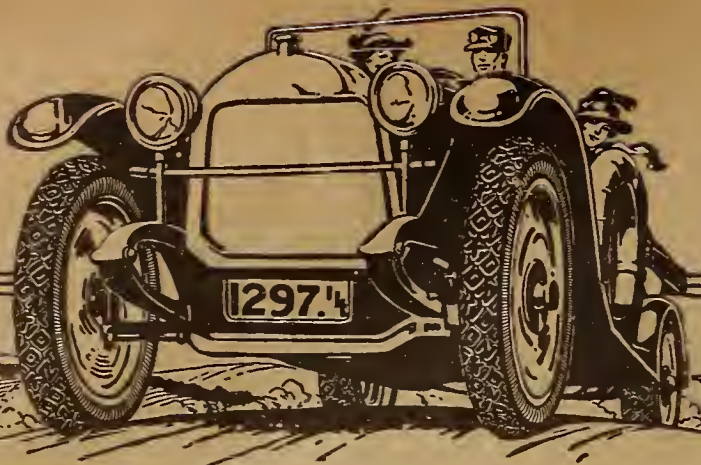
When raising sweet clover, soys, and other legumes for fodder and feed, the fact should never be forgotten that these crops are less exhausting to soil than is timothy, redtop, and cereal crops. Sweet clover in particular is a first-rate preparation for alfalfa.



Here is one style of buncher used in connection with a mower to harvest clover for seed



This man believes in keeping up the productiveness of his farm by green manuring. Considerable moral courage is required to plow under a crop, but it keeps humus in the soil



Firestone

Non-Skid Tires

—Built for the man who must make town for market, bank or train.

—Built for the man who must have tires that will give him service, regardless of weather or road.

—Built by the men who are specialists in making and selling tires—men who do nothing else in America's Largest Exclusive Tire Plant.

The sturdy Firestone qualities of sure grip, long life, great resiliency, and freedom from mishaps have gained the patronage of motorists everywhere.

Red Side Wall—Black Tread

—the trade-mark of Firestone Tires and the sign of exclusive values—not only in looks but in toughness of the tread.

Firestone Accessories are easy to apply and certain to work. Your dealer has them.

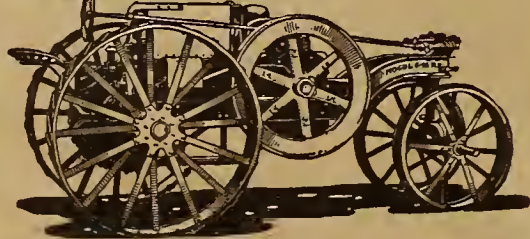
Free Offer Send the name of your dealer and make of your tires and get one of our Cementless Tube Patches. Also copy of our book, "Mileage Talks," No. 45.

Firestone Tire and Rubber Company

"America's Largest Exclusive Tire and Rim Makers"
Akron, Ohio Branches and Dealers Everywhere

Mogul 8-16—A Real Kerosene Tractor

Sells for \$725 Cash f. o. b. Chicago



WHEN you buy a tractor, look beyond the price. It is not the price a man pays for a tractor which is of the most importance, but what its power costs. A Mogul 8-16 burning kerosene, in 5,000 hours of work, will save more than its original price over the cost of the same power produced by a gasoline tractor. Remember, the 8-16 is a real kerosene tractor, planned and built originally for using this cheap, plentiful fuel. Price is of minor importance compared with Mogul 8-16 saving.

It is our policy to sell the Mogul 8-16 at the lowest possible price, always maintaining Mogul quality, though nowadays some of the materials are almost unobtainable even at an advance in price of from 50 to 100 per cent over the prices of a few months ago. \$725 cash f. o. b. Chicago is the lowest price at which Mogul 8-16 can be sold.

Orders placed at once will stand the best chance of being filled without delay. See the Mogul 8-16 dealer or write us for the story of kerosene before you buy any tractor.

International Harvester Company of America
(Incorporated)

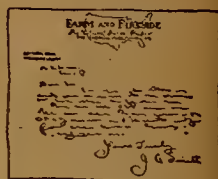
CHICAGO

USA

Champion Deering McCormick Milwaukee Osborne Plano

The Editor's Letter

Plans for Farm Partnership and Rentals



I HAVE just received a letter from an Oklahoma poultrywoman who presents a good-sized turkey-raising proposition. She says she has had a lot of successful turkey-raising experience to back up her contentions. Let me know what you think of her plan:

"With proper equipment I can raise 1,000 turkeys a year ready for the holiday market by making use of 25 to 30 first-class breeding turkeys. Besides the breeding stock I should require two good incubators of about 400-egg capacity, and sufficient well-adapted roomy brood coops and large wire-enclosed runs in which to care for the poults until they may be safely turned loose with the turkey hens. I should also need a supply of suitable feed for the poults and breeding turkeys until all can be put on range.

"I am ready to put my experience and skill in turkey-raising against the capital required to finance a turkey business such as I have mapped out. Not over \$100 capital will be required at the start in addition to the two or three dozen breeding turkeys.

"The location requirement is of great importance for such a business. A big wheat ranch where the old birds with their 1,000 to 1,200 poults can be turned into the stubble as soon as the wheat is threshed would make an ideal location. Under such favorable range conditions old and young turkeys can secure practically all their living from waste grain and insects until about six weeks before Thanksgiving, when the birds will require feeding.

"To a turkey business of this size I should expect to give my entire time and attention, herding them during the day and putting them in a suitable animal-proof enclosure every night. Conducted as I have described, a turkey business can be expected to furnish a gross income of \$2,500 a year, with an expense of not over \$500."

The foregoing breezy description of high finance in turkey culture has a captivating conclusion. Of course, to those persons who have gone through the trials and tribulations of attempting to raise two or three score poults by the chicken-hen route the plan will look impossible. But to some few turkey wizards who are raising a hundred or two young stock each season in the Western Plains country, this poultrywoman's contention will not seem so unreasonable. At least, I shall not be first to cast a stone at this unique turkey scheme. Mature turkeys are not now so much less valuable than sheep and hogs were formerly. It seems entirely logical to put the business on a basis sufficiently large, where conditions are favorable, so that a turkey shepherdess can live with her flock from sun-up to bedtime during the critical period of their existence. Even if we discount the returns from one fourth to one third, or even one half, the resulting income is attractive, and I shall not be surprised if our turkey enthusiast secures the financial aid and opportunity she wants.

THE farm-renting business cuts a much bigger figure in our national industrial situation than the average citizen realizes. Particularly is this true in the very best and most productive districts of our country. Broadly speaking, the farm owners are trying to build up the productive power of their farms, but the rank and file of renters are being compelled to deteriorate the land they are tilling. They must adopt the skinning and mining processes in order to secure recompense for their toil. Of course, there are exceptions, but the majority of farm owners who rent refuse to consider the future welfare of the land and frown on the idea of making a lease contract of more than one or two years at a time. This hand-to-mouth system of farm-leasing has built up an army of farm-renting soil robbers the dire result of whose operations we are not yet even beginning to realize.

In any of the European countries now devastated by war, Russia possibly excepted, our own soil-robbing system of renting would not be tolerated for a

single season. In England, Ireland, France, Germany, Italy, and Austria farms have been rented continuously for centuries, and have been steadily built up in productivity. Their renting system puts a premium on correct scientific farming practices. Ours discounts good farming and favors all schemes for turning tricks to get the greatest possible results from one or two years of farming operations. The foreign renting policy in England in particular has placed the most successful farm tenants on a par with the landowner in so far as community standing is concerned.

A FEW days ago I happened onto a most interesting and important farm-renting situation in Illinois. A prominent farmer of Macon County gave me a full account of the farm-renting operations that have been under way in his community for a dozen years and more. A wealthy Englishman traveling through Illinois was so taken with the splendid farms of Macon County that he sent an agent to buy him a half-dozen farms as an investment. In due time the farms were bought, aggregating about 1,500 acres. The farms were put in first-class condition as regards fences, buildings, machinery, and general equipment, and long-time leases were arranged with the very best type of young but experienced tenant farmers that could be found. The contracts were patterned closely after those in use with his tenants in England. This Englishman's intention was to make his tenants so well satisfied that they would do their very best for his interests and their own as well during the long-lease periods arranged. His conclusion was confirmed by the fact that his tenants were glad to continue on his farms so long as they wished to follow farm-renting. Most of the tenants, after eight to ten years of renting, have now bought good farms of their own, and as a result of their success while on his farms are now in position to pay for their high-priced farms without great difficulty. There is now a waiting list of progressive young farmers anxious to get a chance to rent one of the farms owned by this English landlord.

The cash-rent charge for these farms is from \$2 to \$3 less per acre than American farm owners in the same community are charging. But in the one case the farms representing English capital are steadily building up and those of American ownership are falling behind in productiveness.

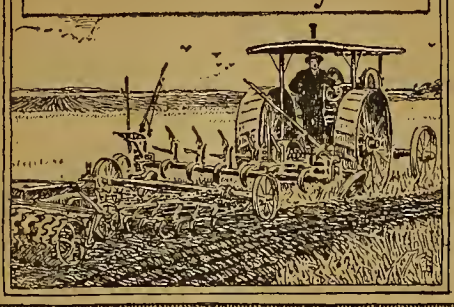
My local informant told me that the sons of this Englishman feel well satisfied with their investment and believe that their renting system is altogether safer and better than the American system employed in the vicinity of their own farms.

WHEN the season of Nature's masterpiece farm pictures rolls round, I always feel sorry for the souls who miss seeing them—the work of the Great Painter whose landscapes are valley, plain, hillside, and mountain top. He paints his background with the green of woods, orchards, cornfields, and late-growing alfalfa. His lavish midsummer colors of brown, gold and softer yellows are in the waving or harvested fields of wheat, barley, oats, rye, and millet. Here and there splashes of red and purple show where the early ripening apple, peach, and plum hang in tempting array. His high lights are reflected from lakes, streams, and mill ponds. Tree-embowered farm homes and cattle on a thousand hills enliven and beautify His pictures and furnish the human touch that every masterpiece requires.

These soul-satisfying farm pictures in midsummer represent the best in life for the needs of all the people. But sometimes those living among these pictures need to journey from home far enough to get perspective and fuller appreciation. When seen at too close range the beauty and best effects may be lost.

The Editor

Machinery



HERE is a brand-new department. While we call it Machinery, it will include the news about and the experiences with the implements, tools, and devices you use or can use on your farm to make your work easier and more profitable. Read these articles, then write us what you think of them and of a machinery department. We shall be glad to get your experience and ideas, and to answer any questions you may ask.

Tractor Hitch for Wagons

AREADER in Oklahoma asks for suggestions as to the best manner of hitching wagons to a tractor.

This is a matter which cannot be definitely answered for all tractors, but in most cases a special tongue should be used for the first wagon. A flat piece of metal is fastened under the tongue for most of its length, and the pull comes on this strip of metal. The second wagon is pulled by a chain which passes under the first one. Thus the pull of the second wagon comes directly on the tractor, and not on the gear of the first wagon. The tongue of the second wagon is fastened to a metal attachment now on the market which is fastened to the reach and rear axle of the wagon ahead, and acts as a bumper and also a guide when the train of wagons goes down-hill. In a similar way other wagons may be added, the limit being the power of the tractor.

For hauling produce that is likely to be injured by jolting, a spring buffer wagon hitch is a good thing. This contains two springs, one of which receives the forward "chuck" of the wagon and the other relieves jolts of pulling.

A Swamp Subdued

THE picture, taken in Illinois, shows a rapid method of reclaiming swamp land. A gas tractor of 80 horsepower is provided with extension rims to increase the amount of traction surface. The tractor pulls a five-bottom gang plow with heavy rollers behind.

This ground was so springy that but for the rollers the furrows would not lie flat enough to bury the vegetation. A disk harrow will be the next tool used on the land.

Observe that the underbrush is in some places over ten feet high, also that in the land already plowed no trash is showing except the tops of a few trees. The first step in reclaiming a swamp like this is first to drain it by ditches and later to put in a good system of tiling.

A power plowing outfit of the size shown is not intended for individual use, but is the equipment of contractors who make a business of doing this work.



This is not only a rapid method of reclaiming wild land, but is also good agriculture. The vegetation buried by the plows will keep the land rich in humus.

Likes Electric Lighting

THE manager of a large Illinois farm which is equipped with an electric lighting outfit has this to say about the use of electricity: "Our electric lighting plant has been in operation nearly five years, and for the most part gives good satisfaction."

"There are 56 storage cells, a dynamo, and a switchboard. We run the dynamo with a 10-horsepower gasoline engine, using it about three hours a day to charge the battery. This amount of electricity is used for 177 lights which will average better than 40 volts each. This lights 30 rooms, besides basement, garage, and two barns. It takes a gallon of gasoline a day for the engine, and one pint of oil. Altogether, we consider it a cheap and convenient lighting system."

Woods for Wagon Hubs

WHICH of the three woods, oak, hickory, or elm, is the best for wagon hubs, and why? This question comes from a reader who apparently selects his farm equipment with great care.

For heavy wagons, white oak is the most popular wood, and when soaked with oil it will last for years. Hickory, though used for spokes, either exclusively or alternately with oak, is not so good for hubs. It does not remain sound and retain its strength so well as oak.

Elm wagon hubs will not stand such hard usage as oak, but elm is exceedingly difficult to split, and is suitable for light wagons. If elm is used for heavy duty the spokes are likely to wear the mortises in the hub and work loose.

Rust Prevention

MOST farm implements rust out before they wear out. Proper housing will offset rust and corrosion to a large extent, but in damp weather the best method of preventing rust is to coat all unpainted parts of the machinery with a heavy oil, thick enough so it will not run off. This coating keeps air and moisture away and prevents rust from starting.

About Bearings

THE bearings of farm machinery are made of various metals, according to the speed of the moving parts and the weights they must sustain.

Ball bearings and roller bearings are among the most desirable for carrying heavy loads, and are used largely in wagons, tractors, and binders. Such bearings are usually made of steel. But where there is much rubbing, as in the case of shafting, softer metal is used. Babbitt metal, one of the most common alloys for bearings, is made of 3 parts copper, 89 parts tin, and 8 parts antimony.

Brass is an alloy of copper, tin, and lead. Phosphor bronze is made of 92½ per cent copper, 7 parts tin, and ½ part phosphorus. For disk harrows the most satisfactory bearings are of wood—chiefly oil-soaked hard maple.

Ask About Tractors

ASUBSCRIBER from Minnesota asks for information about tractors and machinery to use with them, but does not give his complete address. His request requires an answer by personal letter. So let's have the address, please.

The High-Gear Performer on America's Hardest Hills

Boston—Corey Hill on high, 27 miles an hour at the top.

Cincinnati—Clifton Hill on high, 30 miles an hour at the top.

Kansas City—Hospital Hill on high, 38 miles an hour at the top.

Denver—Lookout Mountain, on high all the way, reaching 7800 feet elevation.

IF YOU are looking for high-gear hill-climbing to prove power and performance—here are specific Hupmobile instances. Dealers report them from demonstrations.

If they sound extraordinary, permit us to remind you that to Hupmobile owners they will merely confirm their own every-day experiences.

Hills that are Play for the Hupmobile

Boston motorists regard the Beacon street side of Corey Hill as their worst climb. Few cars hold high gear to the top.

C. E. Jeffery, Jr., says his favorite demonstration is to come down the hill, turn at the bottom, and start back on high. The car is usually traveling 27 miles an hour when it tops the rise.

In Cincinnati, Fred T. Larson drives the Hupmobile half way up Clifton Avenue Hill at 30 miles; cuts the speed to 15 miles; and picks up again to 30 miles, finishing at that gait—without shifting gears.

Ten leading cars sold in Kansas City do not take Hospital Hill on high. The Hupmobile does; and W. C. Howard, the dealer there, says a hurricane must be blowing against the car any time it fails to clear the top at 38 miles an hour.

Omaha reports a brick paved test hill, 20 per cent rise, a block long. The Hupmobile, carrying five passengers and registering seven miles an hour at the bottom, skims it on high gear.

Thousands of tourists know how the Lookout Mountain trip in Colorado tests the high-gear power and the cooling efficiency of motor cars.

High Gear All the Way on Lookout Mountain

The Denver dealer regularly makes this trip—to Idaho Springs and return—without shifting gears or taking on

The Mark of Superior Motor Car Service



Things You Should Know About the Hupmobile

Four-cylinder motor—extremely simple, reliable and compact. High speed type.

Horizontal type automatic carburetor—no adjustments.

Multiple-disc, 17-plate clutch, in unit with motor and transmission.

Spiral bevel, full-floating rear axle.

Oversize brakes—one square inch braking surface to each 8 pounds of car weight.

Tires 10 per cent oversize.

Underslung rear springs, very long and flexible.

Wheelbase of 119 and 134 inches.

5-Pass. Touring Car \$1185

Roadster \$1185

7-Pass. Touring Car \$1340

f. o. b. Detroit

water. The climb is 2300 feet; the greatest elevation 7800 feet.

Is there any reason why Hupmobile owners should envy the performance of other types?

11,000 Owners Rate Efficiency at 99%

In pick-up, flexibility, smoothness and steadiness, Hupmobile performance is equally good.

Eleven thousand owners give the car an efficiency rating of 99 per cent.

You begin to see now why 50 8-10 per cent of Hupmobile owners will have no other car. Why 24 2-10 of our owners are men who have owned costlier cars and cars with more cylinders.

They prefer the Hupmobile, because it does all they expect of a car; and because the Hupmobile free coupon service system assures them—without a penny of cost—skilled care, inspection and adjustment each month for eight months.

Call on the Hupmobile dealer for a performance test as severe as you like.

Hupp Motor Car Corporation
1344 Milwaukee Ave.
Detroit, Michigan

Hupmobile



FARM and FIRESIDE

THE NATIONAL FARM PAPER

Published Twice a Month by
The Crowell Publishing Company
Springfield, Ohio

Branch Offices: 381 Fourth Avenue, New York City;
Tribune Building, Chicago.
Entered at the Post-Office at Springfield, Ohio, as Second-Class Mail Matter.

Subscription Price

One year (24 numbers), fifty cents. Three years, one dollar. Extra postage for Canada, twenty-five cents a year.

About Advertising

Farm and Fireside guarantees that its advertisers are responsible and honest people, and that its subscribers will receive fair and square treatment.
Advertising rates and regulations furnished upon request.

August 19, 1916

James Whitcomb Riley

THE last of the truly American poets, in that he was the last to whom clung the original flavor of America's pioneer woods and fields, James Whitcomb Riley, died at his home in Indianapolis, July 22d, at the age of sixty-three.

Mr. Riley's philosophy of life and the manner of expressing it in Hoosier dialect won for him a place in the hearts of the public. More than any other citizen of Indiana, he carried the fame of his native State into the schools and the homes of the world. It is not strange that the sorrow of his death should be nation-wide.

Whether he was painting signs—as he did when a young man—or writing verses, the people were his study. He familiarized himself with their manners and customs and characteristics, and “with melody and sweetness and gift of invention” he told them things about themselves they did not know. This is why everyone loves him so much, and why we, years after his poems were first published, decided to give our readers once again the joy and sympathy that comes from every reading of Mr. Riley's poems. They are never old; or, better still, age only makes them finer.

While Mr. Riley has left millions of friends behind to mourn bitterly his death, his spirit and poetry lives on.

James Whitcomb Riley was born in Greenfield, Hancock County, Indiana. He came into the world in a little log cabin, weather-boarded over, lighted through little square panes in the daytime and by candles at night. He has lived all his life in the State of his birth.

Mr. Riley instinctively accepted the world as his field of labor, and the human heart as the source of his inspiration and the object of his devotion. In the depths of his soul there was love for his fellow men and adoration for his God.

Swat the Billboard

WHY in the world will farmers lease to advertising concerns the right to erect lines of billboards along railroad rights of way? It is one of the most excuseless and unprofitable disfigurements of the country. It breaks up the tilling plan of the field, and it leaves a bad taste in the mouth of the railroad travelers.

The farmer who lets his barn be used as a signboard for pills, in consideration of having bad paint put on it, advertises himself as thrifless. The man who cuts into a good field in order to get a few dollars from a liver cure or a blend of booze is losing sure money to get what he foolishly regards as easy money.

One of the advantages of owning a farm that thousands of railroad passengers see every day is the possibility that some of them will fancy and want to buy it. If statistics on the subject could be had it would be astonishing that so many sales come this way. Well, the farmer who plasters his land over with circus paper and patent-medicine propaganda is in effect saying:

“I can't make this land pay—just farming it.”

That's mighty bad advertising for the farm. Of course, the Pullman passenger may see it the other way, and say to himself:

“There's a farm that doesn't pay; maybe I can buy it cheap.”

You can take your choice. Which do you want 'em to think?

Work

THE opportunity that comes to the farm boy for learning early in life what work is and how to do it constitutes one of the real advantages of country boys over their city cousins. The eight-year-old country boy can do much to help his father in the regular run of farm work. He sees his parents and his older brothers and sisters rising early and doing, each one of them, a certain amount of physical work, no matter how prosperous the farm may be. It is only natural that he should copy them, that he should want to learn how to take care of stock, and how to operate farm machinery—in fact, unless he is a dullard, by ten years of age, the sound principles of work are so grounded in him that no matter what his calling in life may be, whether he farms, teaches, preaches, sells, or manufactures, he will remain a worker until the end of his days.

On the other hand, the city boy whose father is a plumber, a lawyer, a doctor, what work can he do at ten years of age? Some of the household drudgery, perhaps; but he cannot associate with his father and brothers in the family business as the country boy does. Small wonder if he dislikes work. He has only been allowed to do that which his elders scorn—mow the lawn or tend the furnace. But his country cousin has had a taste of the real thing. When you stop to think about it, there is good reason why employers the world over prefer “farm boys,” for they have learned how to work.

An Indiana Poultryman

THE hen that lays often and long gets lots of attention. A. G. Philips, in charge of the Indiana Poultry Experiment Station work, has produced such a hen in Lady Purdue. This Leghorn hen laid 229 eggs in her pullet year and 214 in her second year. She represents some half-dozen years of breeding for egg-production improvements and conclusively shows that poultry stock can be bred up to high production just as certainly as is the case with dairy stock. Line-breeding, which is merely careful inbreeding, has brought extremely favorable results as carried on by Mr. Philips.

Among the important results in this line are hens that have records from 170 to 209 eggs, which were the offspring of a male from a hen that laid 637 eggs in four years. This male



mated to a hen having a record of only 61 eggs in a year produced a pullet that laid 252 eggs in one year.

Mr. Philips is also working out important feeding problems, comparing the value of meat scrap and skim milk with rations that contain no animal protein food.

The Grain Market

THERE'S no need worrying over the market prospects for grains because prices seem to get on the toboggan at this season. A recent study of prices of wheat, covering a long period of years, shows that in the long run of experience June and July are the worst months of the twelve, from the seller's point of view. Not only is this shown to be true in this country, but throughout the north temperate zone, which raises most of the world's wheat and makes the market for it.

The influence of the oncoming crop and of the last effort to push the remainder of the old crop out on the market explains this sag. As a rule, June and July prices have less accurate relationship to the real factors of supply, demand, and crop conditions, which decide prices, than in any other month of the year. The general law seems to be that if prices for the hard cereals remain reasonably firm during this period they can be expected to stiffen pretty decidedly later.

The Orchard Lands of Long Ago

By James Whitcomb Riley

THE orchard lands of Long Ago!
O drowsy winds, awake, and blow.
The snowy blossoms back to me,
And all the buds that used to be!
Blow back along the grassy ways
Of truant feet, and lift the haze
Of happy summer from the trees
That trail their tresses in the seas
Of grain that float and overflow
The orchard lands of Long Ago!

Blow back the melody that slips
In lazy laughter from the lips
That marvel much if any kiss
Is sweeter than the apple's is.
Blow back the twitter of the birds—
The lisp, the titter, and the words
Of merriment that found the shine
Of summertime a glorious wine
That drenched the leaves that loved
it so,
In orchard lands of Long Ago!

O memory! alight and sing
Where rosy-bellied pippins cling,
And golden russets glint and gleam,
As, in the old Arabian dream,
The fruits of that enchanted tree
The glad Aladdin robbed for me!
And, drowsy winds, awake and fan
My blood as when it overran
A heart ripe as the apples grow
In orchard lands of Long Ago!

(By Permission of Bobbs-Merrill Company)

Our Letter Box

A Trout Story

DEAR EDITOR: Now is the season for trout and trout stories. I don't expect an ordinary trout fisherman to believe what I am about to say, but it's nevertheless true. Some years ago a friend of mine invited me to go “whipping the brooks” with him in Massachusetts for the day. We struck a fine stream to all appearances, and at the same time it must have been an ideal trout stream, plenty of deep pools, swirling eddies, frothing cataracts, etc., besides the rocks and smaller stones were just about the right distance apart for a running jump so that you could go along dry-shod if you were athletic. We fished down this stream patiently for more than two miles without getting a bite, and then hiked across country to another about three miles away. This was different. The water ran sluggishly through a swampy, mucky country with the edges of the stream thickly covered with high blackberry briars and tall grass well matted together. There was a well-trodden path along the outside of this jungle where ordinary fishermen were wont to go and occasionally try in little spots where it seemed to them safe to throw without getting a line caught. My friend who had been there before pointed to the thickest place in the briars saying, “Get down close to the ground and crawl in there. It ain't so bad as it looks.” I did so, and barring a few scratches and having to turn occasionally to unhitch my rod, which I was dragging after me, I got to the bank of a fine sandy bottom pool about forty feet by twelve feet wide with overhanging banks, a nice riffle at

the upper end. I snapped my bait in all directions over this pool for about ten minutes, lying flat on my stomach, but could not get a rise. I called to my friend, saying that I could see several big fellows under the opposite banks. He went a few rods above, stripped, and carefully floated down with his whole body under the water but his head, and I saw him reach under three trout one after another, tickle them with the ends of his fingers, the trout seeming to enjoy it, and then throw them out on the bank. They weighed from one half to three quarters of a pound each.

LEWIS E. LEIGH, Connecticut.

Advises Young Men

DEAR EDITOR: I have just been reading your advice to young men of small means in the July 1st number of FARM AND FIRESIDE in regard to buying farms and going in debt too much. I am an old man, and wish I could be of benefit to young men who need advice. I came from the East and know the conditions of things there, the advantages and the disadvantages.

I think as a rule a man just starting with small means is foolish to go in debt eight to ten thousand dollars when by coming West he could start very comfortably on a quarter section with two or three thousand dollars. I know the West has been boomed too much and a great many lies told about it, but with all that we have some good country, fairly cheap.

The boomer and the land agent have been a curse to this country, but if one will keep shy of them and look around for himself he can do quite well here. We were “taken in” and paid about double what we should have paid. With all of that we are not sorry that we came West. Our method of farming is different from the East, but one soon learns.

There will be more money spent by the poor fellows that come here to register when the Colville Reservation is thrown open to settlement than would buy the land outright. The railroads and the hotels will reap a harvest and many a poor man will be stranded here without a dollar because he will risk his last dollar in hopes of getting a piece of land.

H. C. PURCE, Washington.

The Service We Give

DEAR EDITOR: Your letter and the bulletins from Washington received in answer to my inquiry about mushrooms. I sincerely thank you for your time and trouble. I. M. HOPKINS, Rhode Island.

Gave Children Education

DEAR EDITOR: I want to tell you about my father-in-law, who came from the old country with bare hands and in a few years bought a \$2,000 homestead on which he paid \$200. It was the years when the boll weevil played great havoc with the cotton crops, so his entire crop with a little truck and cattle was barely sufficient for his family's living.

Although poor, he gave his children their education before he bought the farm, so that out of his seven children four were public-school teachers, and they in turn gave him all the money earned as long as they did not have a home of their own.

This enabled him to pay for the farm and also improve it. He lived long enough to see his property clear of debt, and left it to his children. More than that, he gave them what nobody could take away—education.

F. W. JARES, Texas.

Wheat with Irrigation

DEAR EDITOR: I grow wheat for seed in an irrigated area under a government project. Our farms do not permit of large areas like in the northern part of the State or western Oregon or Washington, where hundreds, and even thousands, of acres are in one field. My line of work is seeds—clovers and corn especially. Sudan grass has been good, but it is so easy to grow that I am compelled to quit it for seed purposes. I took the honor, however, of being among the first to grow good corn in the West, winning firsts at two national shows.

C. O. TOBIAS, Idaho.

Free-Martin Experience

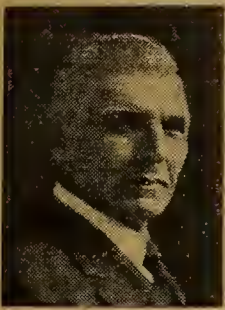
DEAR EDITOR: In a recent issue I noticed the question raised, “Will a heifer twinned with a bull breed?” Some years ago one of my milch cows gave birth to twin calves. The male calf lived only a few days.

The heifer I kept till almost two years old. She was healthy and made good growth, and always kept in good flesh but never came in heat, so I finally sold her to the butcher. My advice is not to depend on a free-martin for breeding purposes.

C. M. B., Kentucky.

Good Health Talks

By DR. DAVID E. SPAHR



TO MANY expectant mothers the period of gestation is one of extreme discomfort, amounting in some cases almost to torture and anguish. From the moment of conception she enters upon a new life, with new sensations and emotions. Certain bodily functions are subverted and all the organs of the body enter into new relations, and take upon themselves new conditions. No longer relieved by the usual monthly flow, peculiar reflex nervous phenomena disturb her rest by day and her comfort by night. Under the nervous stimulation of a living embryo, a small organ of the body takes on new life and activity. Its blood supply is increased, its form changes, its body enlarges, and in time impinges upon surrounding tissues and organs, destroying the harmony of their action, and stimulating some to activity and others to profound torpidity.

From an obscure organ weighing but a few ounces, it increases in a few short months to an organ weighing twenty pounds or more, insinuating its presence into a cavity already comfortably filled. Now if there should happen to be any latent inflammation, or any diseased structures within this compressed space, they will evidently be subjected to great strain and much inconvenience, as well as great danger of permanent injury. Their action will surely be interfered with. The mind sympathizes with the bodily ailments, and nervous hysteria prevails in some cases.

Broken-Down Arches

Please give me a simple home treatment for broken arches. Have bunions on each foot. Are arch supporters of any value? Is permanganate of potash or borax of any value for a vaginal douch?

V. I. O., Minnesota.

FOR your bunions wear well-fitting round-toed shoes, and soften the bunion with applications of oil, soak in hot water, and wear a pledget of cotton between the toes. For your broken arches wear a perfect-fitting arch supporter.

Permanganate of potash or borax is good if used with care and not made too strong.

Two Fevers

What is the difference in the symptoms of typhoid and typhus fever?

C. M. W., Indiana.

THE suddenness of the onset, the continued high fever from the beginning, the greater frequency of the chill, the early prostration, the greater nervousness and higher mortality, distinguishes typhus fever from typhoid fever.

Watery Eyes

Can you give a remedy for watery eyes? They run a gummy-like water and are slightly inflamed.

Mrs. A. S., Missouri.

WASH them with a ten per cent boric-acid solution, and then drop a drop of a twenty per cent argyrol into each eye morning and night.

Varicose Veins

About three months ago I fell on a curb and burst some varicose veins in my limb. It was an inward hemorrhage and left a large bunch of blood clots. Eczema set in, and is making it very annoying, and it does not yield to treatment. Would it be advisable to work and walk with such a limb?

Mrs. H. G. S., Pennsylvania.

IT WOULD not be advisable to work or walk. Wear an elastic stocking, and take a Seidlitz powder every morning and be quiet, or go to bed and give the clots time to be absorbed.

Chorea

My daughter, aged fourteen, has had rheumatism, and is now bothered with her arms jerking. What can be done for her?

Mrs. N. B., Ohio.

GIVE her five drops of Fowler's solution of arsenic, three times every day after meals. Omit Sundays. Increase a drop per week until the under lid of her eye gets puffy, then stop. The treatment should relieve her in a month or more.

A Great Increase in Railroad Wages Means Higher Freight Rates and a Burden on Agricultural Prosperity

Do you think the railroads ought to increase the wages of their highly paid train employes \$100,000,000 a year?

No great increase in railroad wages can be made without directly touching your pocketbook. Out of every dollar you pay the railroads 44 cents goes to the employes.

Compare the wages of these men (who have refused to arbitrate their demands for higher wages, and are threatening to tie up the country's commerce to enforce them) with those of other American workers—with yours.

On all the railroads in 1915 three-quarters of the train employes earned these wages:

	Passenger		Freight		Yard	
	Range	Average	Range	Average	Range	Average
Engineers . . .	\$1641 3983	\$2067	\$1455 3505	\$1892	\$1005 2445	\$1526
Conductors . . .	1543 3004	\$1850	1353 2932	\$1719	1055 2045	\$1310
Firemen . . .	943 2078	\$1203	648 2059	\$1117	406 1633	\$924
Brakemen . . .	854 1736	\$1095	755 1961	\$1013	753 1821	\$1076

You have a direct interest in these wages because the money to pay them comes out of your pocket.

Low freight rates have given American farmers command of the markets of the world.

With two-thirds of the cost of operating railroads the wages paid labor, any great increase in labor cost inevitably means higher freight rates.

A \$100,000,000 increase in railroad wages is equal to a five per cent. increase on all freight rates.

The railroads have urged that the justice of these demands be determined by the Interstate Commerce Commission (the body that fixes the rates you pay the carriers), or by a national arbitration board. The employes' representatives have refused this offer and have taken a vote on a national strike.

This problem is your problem. The railroad managers, as trustees for the public, have no right to place this burden on the cost of transportation to you without a clear mandate from a public tribunal.

National Conference Committee of the Railways

- ELISHA LEE, Chairman

P. R. ALBRIGHT, Gen'l Manager, Atlantic Coast Line Railroad.

L. W. BALDWIN, Gen'l Manager, Central of Georgia Railway.

C. L. BARDO, Gen'l Manager, New York, New Haven & Hartford Railroad.

E. H. COAPMAN, Vice-President, Southern Railway.

S. E. COTTER, Gen'l Manager, Wabash Railway.

P. E. CROWLEY, Asst. Vice-President, New York Central Railroad.
- G. H. EMERSON, Gen'l Manager, Great Northern Railway.

C. H. EWING, Gen'l Manager, Philadelphia & Reading Railway.

E. W. GRICE, Asst. to President, Chesapeake & Ohio Railway.

A. S. GREIG, Asst. to Receivers, St. Louis & San Francisco Railroad.

C. W. KOUNS, Gen'l Manager, Atchison, Topeka & Santa Fe Railway.

H. W. McMASTER, Gen'l Manager, Wheeling & Lake Erie Railroad.
- N. D. MAHER, Vice-President, Norfolk & Western Railway.

JAMES RUSSELL, Gen'l Manager, Denver & Rio Grande Railroad.

A. M. SCHOYER, Resident Vice-President, Pennsylvania Lines West.

W. L. SEDDON, Vice-President, Seaboard Air Line Railway.

A. J. STONE, Vice-President, Erie Railroad.

G. S. WALD, Vice-Pres. & Gen'l Manager, Sunset Central Lines.

This Car GIVEN and the Agency for your Territory

5 Passenger—26 H. P. Electric Lights and Starter—Demountable Rims—Non Skid Tires in Rear—Fully Equipped. A wonder car and you can get one without cost. Write now for full information. Learn how you can get this car without cost and make big money in the automobile business. Don't delay—the offer is strictly limited. Write at once. A postal will do. Address me personally. Ralph Birchard, Pres.

Birch Motor College, Inc. Dept. 870, Tower Bldg., Chicago

ROSS Silo Fillers for Gasoline Engine Power

Our 66th Year

Double the Capacity with Less Power and considerably Less Speed.

We make Silo Fillers of extra large capacity to meet the special requirements of all silo users. These machines are specially designed to be operated by popular size Gasoline Engines—6-8-10-12 and 14 H. P.

Tell us what your power is and we will advise you what size Ross Silo Filler you require.

Write for Our Special Proposition Today and state if you intend to buy this year. Early orders will save you money.

The E. W. Ross Co., Box 119, Springfield, Ohio

The PERFECT CORN HARVESTER

Sold Direct \$19.50 JUST the THING for SHOCK or SILO CUTTING

Works in any kind of soil. Cuts stalks—doesn't pull like other cutters. Absolutely no danger.

Cuts Four to Seven Acres a Day with one man and one horse. Here is what one farmer says: Loudonville, Ohio, Dec. 4, 1915 Love Mfg. Co.: Dear Sirs: The "Perfect" is all right. I wouldn't want to be without it for twice what it cost me. Some of our corn was very weedy, but the harvester did the work. Respectfully, Herman Fritz.

SOLD DIRECT TO THE FARMER

Send for booklet and circulars telling all about this labor-saving machine; also containing testimonials of many users. Send for this circular matter today.

LOVE MANUFACTURING COMPANY Dept. 40 Lincoln, Illinois

Distillers' Grains

ATLAS DAIRY FEED contains three times the protein and fat contained in corn, oats, barley, bran, etc., and costs far less. Sign Coupon for FREE Sample.

Why pay \$26.00 for corn; \$26.00 for oats; \$21.00 for bran and \$27.75 for barley, when Atlas Distillers' Grains cost only \$22.00 per ton, bulk, f. o. b. Peoria?

Atlas Distillers' Grains will increase your milk and butter-fat production, and do it at a far smaller feed cost. Get the information right away.

Atlas Feed & Milling Co. P. O. Box 54 PEORIA, ILL.

Nearly ALL CHAMPION Dairy Cows are fed Distillers' Grains

Free

Gentlemen:—Please forward a FREE sample of Atlas Distillers' Grains, also FREE circular.

Name _____

Town _____

State _____ R. F. D. _____

When You
Follow The
Trail

Go
Equipped With

WINCHESTER
Guns and Ammunition
Made for all kinds
of shooting.
SOLD EVERYWHERE

ASK FOR THE **W** BRAND

\$7.50 Down
After
30 Days Free Trial

Think of it!—Only \$7.50 if satisfied after trial—then a few monthly payments—and you keep the Genuine Belgian Melotte—the separator with the wonderful, self-balancing bowl. The Melotte turns so easily it will run 30 minutes after you stop cranking unless you apply brake. Write for catalog—it explains everything. Now—read our offer.

Not a Cent in Advance Just ask for a 30-day free trial. Then we ship the Melotte. No salesman calls to bother you. Use the machine in every way. After 30 days, send it back at our expense if you wish. Or keep the great Melotte on our rock-bottom offer—\$7.50 down and balance in the same monthly payments. Write for free catalog and details.

No Duty Now Valuable Book
Save \$15.25 Free

The high tariff, which has heretofore kept the great Melotte out of reach of the American farmer, has been cut right off. The imported Belgian Melotte now comes in free of all duty. An extra reduction now of \$15.25.

We offer you these separators at the rock bottom, before the war price—the same price charged in Belgium plus only \$1.75 water freight. Seize this opportunity. Send for free catalog.

Write today for "Profitable Dairying" written by Professors Benkenrodt and Hatch, the two great, practical dairy scientists. 88 pages; no advertising. Tells how to feed and care for cattle—how to increase dairy profits. Write Today We'll also send the new of our free trial, no money down, easy payment offer. Write while this offer lasts.

The Melotte Separator
H. B. BABSON, U. S. Manager,
Dept. C-403, 19th & California Ave., Chicago



Whew, It's Hot!

Let's go and get some good old

Coca-Cola

When you're hot and thirsty, or just for fun, there's nothing comes up to it for deliciousness and real refreshment.

11c

Demand the genuine by full name—nicknames encourage substitution.

THE COCA-COLA CO.
ATLANTA, GA.



We guarantee that every subscriber will receive fair treatment from advertisers. It therefore pays you to mention Farm and Fireside in answering advertisements.



Live Stock

Fighting Botflies

By John Coleman

DURING August, horses are annoyed to a considerable extent by the presence of botflies. These flies are about the size of honeybees, and are most annoying to horses' legs.

Botflies deposit small yellow eggs, and cement them to hairs at the time they are laid. During the late fall and early winter the eggs enter the horse's mouth. Later the eggs hatch in the stomach, and develop into the larval form known as bots. They attach themselves to the lining of the stomach, where they remain and consume some of the nutriment that should nourish the horse. During late spring and early summer the bots pass out in the manure. They at once burrow into the ground, where they undergo changes in their life cycle, and soon emerge as fully developed botflies.

Bots produce no definite symptoms, neither is there any satisfactory treatment that can be applied. Prevention is easy, and practicable to a considerable extent. Every few days during the fall months all hairs should be clipped off that contain eggs of botflies. By thus reducing the number of eggs the number of bots will be reduced.

Formaldehyde Cures Bloat

By Henry Ashton

EXPERIMENTS conducted at the Kentucky Station with formaldehyde as a treatment for cattle badly affected with bloat caused by eating too much succulent clover or alfalfa has given very promising results.

One-half ounce of formalin in one quart of water makes the proper solution for treating bloated animals. After administering the remedy, a block of wood is placed in the animal's mouth to allow the better escape of the gas. In all the cases tried the cows were in normal condition twenty to twenty-five minutes after the formalin solution was given, even when the animals were badly bloated and in a dangerous condition. Formalin is a trade name for a forty per cent solution of formaldehyde, and can be procured at any drug store.

When to Sell Hogs

By Roger Irving

WHEN is the best time to sell hogs? Prices paid for swine since 1896 show that two periods of the year were distinctly favorable for securing the best market price. These are during the early part of September and the early part of April. At other times the average price ran much lower, reaching the lowest mark in November. The average September price was \$6.90 per hundred pounds, the April price \$6.65, and the November price \$5.50. It is evident that swine raisers secure the most profit when they sell their hogs near the high periods.

Save the Breeders

By V. M. Couch

THE present high prices for all kinds of live stock are very likely to continue for some time, perhaps for years. The prices for hogs and cattle have been so high for several months that many farmers could not withstand the temptation of fattening and selling off breeding stock and young stock that might have become good breeding stock. This is bound to result in a general shortage of live stock, and it will require a year or more to catch up with the demand. There are some farmers who always act on the principle that if products are high this week they will be low next. This is sometimes true, but not always. If cows, heifer calves, and brood sows are sold off as close all over the country as they are in central New York State, there cannot help but be a shortage for some time to come, with consequent high prices.

Corn Machinery

[CONTINUED FROM PAGE 3]

Corn harvesters of the sled style are also in common use, notwithstanding the charge that they are dangerous. There is bound to be an element of danger in any contrivance that has knives extending from the sides, but if a man knows where the danger is and keeps away from it, he is not going to get into trouble.

One of these machines which sells for about \$20 is constructed along safety lines, and there is a metal rail between the platform where the operator stands and the knives. A guide rod forces the stalks against the knives and the corn is then allowed to collect till there are about 40 hills on the sled, after which the corn is either loaded on a wagon or shocked. One man and horse will cut about four acres a day under favorable conditions.

A man who cannot stand the heavy work of cutting corn by hand all day will do very well with a sled harvester as long as he is alert and active. Another labor-saving development which has lately gained considerable ground in public favor is the mechanical cribbing of corn. The coming style of corn-crib is one that is nearly square and about as high as the other dimensions. Such construction will give greater capacity at less cost than the old-style long, narrow cribs. High cribs require less foundation, flooring, and roofing, which are the most costly parts of construction.

A built-in elevator will be bought by the money saved in having the crib more compact. You drive in with the load of corn, dump it, and the elevator does the rest. Power to elevate the corn is supplied either by horsepower or a small engine.

In addition to the time and labor saved in the mechanical cribbing of corn, here are definite financial benefits:

You can pick out moldy or bad corn as it goes up the elevator. You can select your seed corn at the same time. You are in a better position to know the exact quality of the corn.

Where a large number of cribs are to be filled, a portable elevator has advantages over the built-in kind, as one will do all the work on the average farm. The picture is an Iowa scene, and shows a portable elevator operated by a small gasoline engine. An outfit of this kind will crib a load in about five minutes, and 2½ gallons of gasoline supplied the power for elevating 4,000 bushels of oats.



This method of filling cribs and granaries is doing away with lame backs. A gallon of gasoline will furnish power to elevate more than 1,000 bushels.



Dairying

Farm Cheese Factory

By Otto J. Kilian

MAKING cheese from the milk of a single dairy has the disadvantage of small output in most cases, but has the advantage of complete control of all operations. Fred Beilke, a Wisconsin dairyman, has conducted a farm-size cheese factory for seven years in the following manner.

He has a herd of 15 cows which produce from 250 to 300 pounds of milk a day. His building is 20 feet wide by 30 feet long, with a partition dividing it into two rooms, each 15 by 20 feet. One room is used for cheese-making, and the other is his boiler and tool room. There is a door between them. His engine is a steam engine of upright pattern.

In the cellar below the cheese-room is his curing-room, and in one corner of this he has a force pump to draw water from a well ten feet from the building. The curing-room also has one important feature essential for making cheese of high quality—namely, a system for securing fresh cold air. This comes through clay pipes connected with the well, and he has a pump for supplying the fresh air according to the amount needed.

In the winter time the curing-room is heated to the proper temperature with steam heat. Mr. Beilke not only makes excellent cheese but he has been fortunate in having a steady market for his entire product. He never has made enough to satisfy the demand. Brick cheese is one of the varieties he has made to a large extent, and has secured as much as 14 pounds of brick cheese from 100 pounds of milk. The factory is equipped so that butter can also be made if desired.

Artesian-Well House

By A. L. Roat

SEVERAL seasons ago we experienced a severe drought. The wells were dry almost seven months. We have several artesian wells on the place, but it was necessary for a new one to be dug near the house.

From this new well, which yielded an enormous quantity of water, we pumped water with a gasoline engine into another well that is connected to the house and barn through a storage-tank system.

But during rainy weather and the winter months we experienced much difficulty with the battery wires on the engine. Of course, the engine was protected by a cover, but the wires nevertheless managed to get wet.

Then it was I determined to make a suitable place for the pump, and, besides, it was annoying to stand in the rain and sleet to get water. We always



Besides sheltering a pump and the engine that drives it, this well house contains a washstand and necessary toilet articles for washing up after work

prefer fresh-pumped water for the table. I covered the well with the house illustrated. It is built of wood and weather-boarded, and roofed with red cedar shingles. It has windows on three sides.

A washstand and necessary toilet articles are in one corner of the well house. Here the men wash up after work. The house has a concrete floor. The pump is at one side, and is always ready to perform its duty regardless of weather. The water is brought up also by means of a hand lever. When the door of the house is closed the room keeps at a low temperature, and poultry is conditioned there to remove the animal heat.

E

An Announcement of Hudson Policy

35,000 More Hudson Super-Sixes

Detroit, Mich., July 1, 1916

We have today to announce—

That more than ten thousand Hudson Super-Sixes have now been delivered to owners.

That we have in four months, by tremendous exertion, quadrupled our daily output.

That we have parts and materials, on hand and in process, for 20,000 more of the present Super-Six. Constantly increasing demand has just forced us to place contracts on materials for an additional 15,000.

Thus it is settled that at least 35,000 more of the Hudson Super-Six will be built like the present model. Our production is now 3,500 monthly.

No Change in Sight

Our opinion is that a like announcement will be made in a year from now. The Super-Six invention in one bound, increased motor efficiency by 80 per cent. From a small light Six, which delivered 42 horsepower, it created a 76-horsepower motor. And simply by ending vibration.

Stock Super-Sixes, in a hundred tests, have out-rivaled all other stock-car performance. In speed, in hill-climbing, in quick acceleration and endurance, they have done what was never done before.

No man can doubt that the Super-Six holds the pinnacle place among motors. And there is no higher place in sight.

After eight months of experience, with 10,000 cars, not one important improvement in design suggests itself to our engineering corps.

So the Super-Six will remain as it is. And, because of our patents, it will maintain its supremacy.

Watch the 10,000

Watch the 10,000 Super-Sixes now running, and judge if you want a car like them.



Hudson Motor Car Company

Detroit, Michigan

Each owner feels himself master of the road. He knows that in every sort of performance his car has out-matched all rivals.

He knows that he has the smoothest-running motor ever built. The most powerful of its size.

He knows that in ordinary driving he never taxes half its capacity. That means long life and economy.

He knows that his motor has shown boundless endurance—such as never before was shown. And that he can look forward to many years of its perfect present service.

Watch some of those cars. Talk to the men who own them. Then ask yourself if there is any fine car equal to it.

Now 135 Per Day

Thousands of men in the past few months have been forced to take second choice. Most of them, we think, now regret it, and will always regret that they did not wait.

Those times are over. We are now sending out 135 Super-Sixes per day.

Go ask our local dealer.

Overland Given

New 1917 Model
FREIGHT PREPAID
If you live in the country or town under 10,000, you can become the owner of this new 1917 Overland without cost, as a reward for a few weeks' spare time work in your own community.
Write today. C. F. ALDRICH, Mgr., St. Paul, Minn.

FREE
MY NEW SPLIT HICKORY BUGGY
Just drop me a postal and I will send you a copy of my big, new Buggy Book. Free and Postpaid. It shows more than a hundred stunning new styles which my big factory is turning out this season at prices as low as only \$39.25 and up. Think of getting a genuine Split Hickory guaranteed 2 years at such prices. Send today and see how to save \$20 to \$40 on your new rig. Address: H. C. PHELPS, Pres., THE OHIO CARRIAGE MFG. CO., Station 45, Columbus, Ohio

Auto-Oiled Windmill

ALL WORKING PARTS INCLOSED

and flooded with oil from the supply in the gear case, which needs replenishing only once a year.

Put your old Aermotor wheel and vane on this self-oiled motor, and have an up-to-date outfit at small cost.

DUPLICATE GEARS RUNNING IN OIL
Oil Annually
EVERY BEARING FLOODED WITH OIL

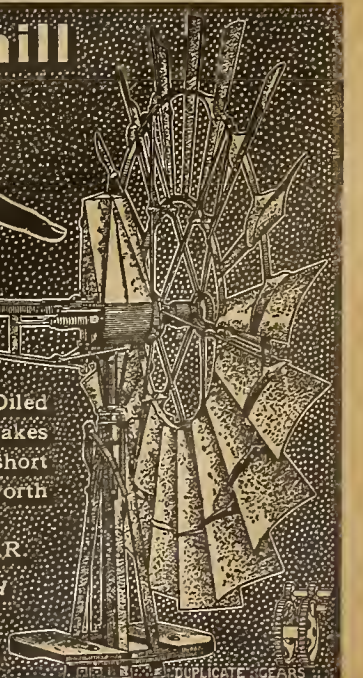
This helmet keeps out rain keeps out dust keeps in oil

Thousands of Auto-Oiled Aermotors have replaced other makes of windmills on their old towers. An Aermotor with a short stub tower can easily be put on "any old tower." It is worth the price to get rid of the continual climbing.

THEY NEED ATTENTION BUT ONCE A YEAR

Write for Folder-Hanger. It tells all about Auto-Oiled Aermotors and Easy-To-Build-Up Towers.

AERMOTOR CO., 1143 S. Campbell Ave., CHICAGO



Lowest Prices Ever Made On World's Best Roofing

Send at once for World's Greatest Roofing Book. We quote Rock-Bottom Prices and pay the freight on Roofing, Siding, Ceiling, etc. Everything the biggest values for the money ever offered.

Edwards Tightcote "Reo" Metal Shingles

outlast three ordinary roofs. No painting, no repairs. Rot, fire, rust-proof. Guaranteed lightning-proof. Can be laid over old shingles if desired. Edwards Galvanized Metal Shingles, Roofing, Siding, Ceiling, or finish is extra heavy galvanized by

Our Exclusive Tightcote Process

by which sides and edges are as heavily galvanized as body of sheet. No weak spots anywhere. By means of our Patent Interlocking Device all nails are driven through under layer of metal only—no exposure—no leaks.

The Galvanizing Test

Take any other galvanized steel, bend it back and forth, hammer it down. Great scales of galvanizing will flake off. Apply this test to Edwards Metal Roofing—you'll find no flaking. Edwards products are superior—yet sell for less than other materials.



Garage \$69.50

Send for Garage Book showing styles and sizes of Portable, Fireproof, Metal Garages, \$69.50 and up. Lowest prices ever made. Send for book today.

Name.....

Address.....

"Reo" Metal Cluster Shingles

"Spanish" Metal Tile

Edwards Patent "Grip Lock"

Corrugated

Brick Siding

FREE Roofing Book

will prove to you that we make lowest freight paid prices. Send coupon for Roofing Samples. Ask for copy of FREE Book No. 853. The Edwards Mfg. Co., 808-858 Pike St., Cincinnati, O.

Book Coupon

THE EDWARDS MFG. CO. 808-858 Pike St., Cincinnati, O.

Please send FREE samples, Freight Paid prices and World's Greatest Roofing Book No. 853.

SQUAB BOOK FREE

Make money breeding PR squabs. 1916 demand biggest ever. Squab book free, telling money-making experiences. How to sell by parcel post, \$6 to \$8 doz. Start small, grow big. Many women customers. Write today. PLYMOUTH ROCK SQUAB CO., 503 HOWARD ST., MELROSE HIGHLANDS, MASSACHUSETTS.

RAISE BELGIAN HARES FOR US. Big money, stock costs a trifle and we buy all you raise at \$2.00 each; also Cavies, Mink, Skunk, Fox, Squabs, Pheasants, Frogs, etc. Contract, instruction book, etc., for dime, none free. A few chances left. Address The Belgian Hare Box 22, Holmes Park, Mo.

ALFALFA LOW PRICES HIGH QUALITY

Guaranteed non-irrigated for \$9.00 bu. and up. Best seed—99 1/2% pure. We save you money on Alfalfa, Clover, Timothy, Sweet Clover and all grass seeds. Write for prices, free samples, and big Profit Sharing Seed Guide.

AMERICAN MUTUAL SEED COMPANY Dept. 413, 43d and Robey St. Chicago, Illinois

AGENTS AT LAST—A Safe Self-Heating Iron

The only KEROSENE (coal oil) Iron in the world

No competition. Every woman wants a safe self-heating iron. Low priced; every home can afford it. Demand perfectly enormous. Big profits. A winner for agents. Write quick for terms while your territory is still open. Sample FREE to Workers!

THOMAS IRON CO. 2148 Gay St. Dayton, O.

HOFFMAN'S SEED WHEAT

40,000 bushels grown on 1232 acres in the Lancaster County Seed Wheat Belt

Six kinds—reliable, hardy, prolific—the choice of sixty varieties—that came under our observation during 17 years of Seed Wheat production.

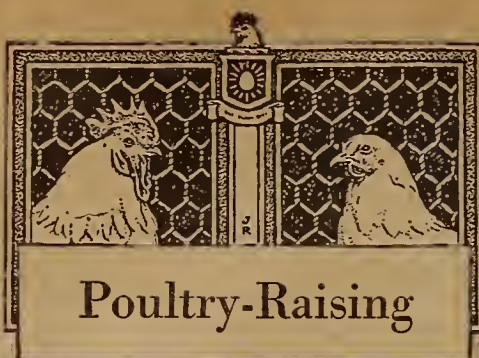
Graded through three modern cleaners—the "Wolf," the "Howe," the "Clipper." Free of smut, rye, cockle, chess, garlic.

Prices are just. It will cost you 20c to 80c per acre to change seed, including bags and in most cases freight.

Seed must please you. If it doesn't you return it at our expense for freight and we return your money.

The head of wheat shown here is "Leap's Prolific." This variety is yielding 35 to 48 bushels per acre. We would like to send you a sample, with "Hoffman's Wheat Catalog"—both free, if you tell where you saw our advertisement.

A. H. HOFFMAN, Inc. Landisville, Lanc. Co., Pa.



Poultry-Raising

About Chicken Poisoning

By R. Bates

ONE summer the men-folks made Bordeaux mixture to spray the potatoes. After the clear liquid had been used there was a lot of lime mixed with poison in the bottom of the barrel. I advised keeping the sediment carefully covered, as hens will eat all sorts of slaked lime. The next spring when the snow melted off, my fine flock of hens was let out looking fit, and proved fitness by filling the egg basket. The second day they were out, my husband came in the house and said: "I don't see what is the matter with the hens; there are more than a dozen dead ones in sight. I never saw anything like it. They are lying on the ground with wings wide-spread and necks stretched out. They must have got something that poisoned them. But I know of nothing they could get, and can find nothing wrong."

As soon as I could leave the baby I went out to see what was the trouble, and was not long in finding it. The boys had been cleaning up the yard and had emptied the barrel containing the dried Bordeaux sediment and carried away the barrel with other rubbish. Many of the hens died within a few feet of the lime. Some did not get so much, and lived a little longer; but 40 hens were poisoned and died. I had the lime sediment scraped up and the ground covered with boards. As the ground was still frozen, the hens could not be buried, so they were put temporarily in a well-fenced garden until they could be buried or burned. Then there was more trouble. Some adventurous pullets flew into the garden, and before they were discovered 20 more were poisoned by eating of the dead hens. Sixty fine hens in all, just wintered and in the pink of laying condition, were lost. The lad who dumped the lime was the one who made the mixture and knew the nature of it. Just a case of "Forgot."

Another time I was losing hens and could see no reason for it. I was looking around one day and saw several hens go to a swill pail that had just been used. I looked in the pail, and there was perhaps a cupful of chop feed, and scattered through it were small lumps of salt. The feed and water and salt were put in a barrel and stirred a little and fed out at once. The hard lumps of salt sank to the bottom and did not all dissolve, and the hens ate all that settled to the bottom of the pails and at each feeding got enough to make them ill. Salt is poison to hens eaten in too great quantity. Mixed in feed to the amount we would use in our food it is all right. Our grandmothers used to say, "Salt rots the lining of a fowl's gizzard." The idea was not far wrong. Don't put brine in reach of hens, nor let salt be scattered in salting cattle and horses.

Brine will kill pigs too. A neighbor was cleaning her cellar and carried out a jar containing brine left from salted meat, and being economical she thought she could just as well pour it in the swill barrel, and then forgot to tell her husband she had salted the swill or, rather, oversalted it. He salted it again. Result—some dead hogs.

Another neighbor had some nice pullets one fall which were laying some, and she was anxious to have them do even better. One cold night a young shote was smothered by the pigs' piling up to keep warm. She thought, here is a chance for some meat for my hens. She overfed with the meat and lost a lot of her hens.

Not long ago I was visiting a friend who frequently has hens and other poultry die without any apparent cause. She makes a great deal of bread, and I learned that she practices throwing left-over yeast, yeast-jar washings, and scrapings of the bread board into a feed bucket used for mixing mash for hens. This mash is kept often for twelve hours where the temperature is warm enough for the yeast "to work." I believe this practice accounts for the unaccountable death of her poultry. "Slack" baked bread sickens humans, and I think it will kill chickens.

Another danger to our flocks is broken glass. Do not believe anyone who tells you to pound up glass and crockery. There is great danger of blinding yourself with the flying par-

ticles. I have known of hens swallowing pieces of glass which cut through their crops and the outer skin.

I believe more losses than is generally known are caused by hens swallowing indigestible substances which are too large to pass out of the crop and prevent food passing out of it, and so they starve to death. I once saw a chicken's gizzard with about a dozen pins stuck fast in the lining and partly through the flesh. Another danger is in letting dead rats, snakes, little pigs, and young or old chickens remain where poultry can get at them. They are soon fly-blown and become putrid. It is believed the sickness in poultry called limber neck is caused by chickens eating maggots containing the poison of decaying meat. They seldom get over the effects of the poison, and generally die.

Handy Home-Made Hopper

By L. R. Anthony

THIS home-made poultry hopper gives me complete satisfaction and is easily made. I use it for the different kinds of grit and charcoal. The hens peck the grit, charcoal, and oyster shell from the small trough that extends the entire length of the hopper, and they do not scatter it about the pen, and it thus prevents waste.

The hopper is two and one-half feet tall, about six inches wide at the top,



and tapers down to two inches at the base. This shape makes the contents chute down to the bottom of the hopper, and it always feeds into the trough. There are partitions in each bin on the inside, and also partitions in the trough.

The hopper sets upon a platform to keep its base above the litter in the pen. Each division of this bin will hold about one-half bushel. For meat scrap and dry mash, which clog more easily, the hoppers must be made with greater care to make sure of no stoppage.

When Feathers Add Value

WHEN you have a particularly nice lot of well-finished cockerels of roaster size, try leaving on the neck, saddle and tail feathers, also the feathers on the outer joints of the wings and those from the hock joints halfway up the thighs.

This is the method of marketing capons, and if your cockerels are good enough in quality, some first-class hotels and vacation resorts will be willing to pay you a higher price than for chickens dressed in the ordinary way.

DON'T forget to save some stock beets and cabbage for green poultry feed for winter. A dime or two spent for seed will return many dollars when this green feed is fed in the winter.

ARE your young chickens crowded in their roosting place? Just because there was sufficient room a few weeks ago is no indication that they are not crowded at present. Look into the matter.

THE Barred Rock seems to have the call over all breeds in this country, it being estimated that there are over 60,000 breeders of this stock who practice buying stock or hatching eggs each year with which to add new blood.

MANY a poultryman says, "There isn't a chicken louse on my place," when he has never really looked at his birds carefully enough to know. If your eyes are poor, put on some glasses that magnify, and look again. Then get busy. Some poultrymen should be compelled to spend a few nights in a "buggy" bed.

How long since the nesting material in your hens' nests has been renewed? Ten to one the worn-out straw or hay covers multitudes of lice and mites lying in wait for the next unlucky hens that enter the nests. Wouldn't you shun those nests if you were a hen, and hunt a nest in the grass, or knock off laying altogether? I should.



Everybody needs it—stored for emergency in a well-developed, well-preserved, well-nourished body and brain.

Grape-Nuts food stands preeminent as a builder of this kind of energy. It is made of the entire nutriment of whole wheat and barley, two of the richest sources of food strength.

Grape-Nuts also includes the vital mineral elements of the grain, so much emphasized in these days of investigation of real food values.

Crisp, ready to eat, easy to digest, wonderfully nourishing and delicious.

"There's a Reason" for Grape-Nuts

Hydraulic Press Cider Profits
Write for FREE BOOKLET based on thirty years' PRACTICAL EXPERIENCE. Also Gasoline and Steam Engines, Boilers, Sawmills. Get our prices. E. B. VAN ATTA & CO., 118 Penn Ave., Olean, N.Y.

Only \$2 Down One Year to Pay!

\$24 Buys the New Butter-fly Jr. No. 2. Light running, easy cleaning, close skimming, durable. Guaranteed a lifetime. Skims 95 quarts per hour. Made also in four larger sizes up to 5 1/2 shown here.

30 Days' Free Trial Earns its own cost and more by what it saves in cream. Postal brings Free catalog, folder and "direct-from-factory" offer. Buy from the manufacturer and save money. ALBAUGH-DOVER CO. (12) 2139 Marshall Blvd. CHICAGO No. 675

Summer Club Offers

We have just completed arrangements which enable us to make some very attractive summer club offers. The magazines are all high grade and the prices remarkably low.

Good for 30 Days Only

Offer A	HOME LIFE,	1 year - - - \$0.25	Our Price
	POWER FARMING,	1 year - - - .50	
	THE HOUSEHOLD,	1 year - - - .25	
	FARM AND FIRESIDE,	1 year - - - .50	
	Total Value -	\$1.50	

Offer B	HOME LIFE,	1 year - - - \$0.25	Our Price
	GENTLEWOMAN,	1 year - - - .25	
	THE HOUSEHOLD,	1 year - - - .25	
	FARM AND FIRESIDE,	1 year - - - .50	
	Total Value -	\$1.25	

Offer C	BOY'S MAGAZINE,	1 year - - - \$1.00	Our Price
	POULTRY SUCCESS,	1 year - - - .50	
	HOME LIFE,	1 year - - - .25	
	FARM AND FIRESIDE,	1 year - - - .50	
	Total Value -	\$2.25	

Offer D	WOMAN'S WORLD,	1 year - - - \$0.35	Our Price
	PLAIN AND FANCY NEEDLEWORK,	1 year - - - .35	
	FARM AND FIRESIDE,	1 year - - - .50	
	Total Value -	\$1.20	

With the price of white paper going up every day, magazines are likely to raise subscription rates at any time. Better be on the safe side—

Send Your Order Now FARM AND FIRESIDE Springfield, Ohio

Win Against the Hessian Fly

To Win Against the Fly,

seed late, feed the crop with available fertilizers which will hasten growth to overcome the late start, and secure vigor with consequent resistance to later broods. Use 200 to 400 pounds per acre containing at least 2 per cent of ammonia. Acid phosphate alone does not give the necessary quick growth and resistance to the fly.

In Farmers' Bulletin No. 640, U. S. Department of Agriculture, fertilizers are recommended to give vigor to late sown crops and resistance to the Hessian Fly.

Write for our map showing best dates for sowing wheat in your locality; also our Bulletin, "WHEAT PRODUCTION," both mailed free.

Soil Improvement Committee
of the
National Fertilizer Ass'n
CHICAGO Dept. 139 BALTIMORE

PIGEONS PAY
Better Than Chickens
Young pigeons (squabs) bring 40 to 60¢ each when 3 to 4 weeks old. Big demand in city markets. Each pair of pigeons easily clear \$4 per year. Always penned up. Very little space and money needed to start. Free Book explains all. MAJESTIC SQUAB CO., Dept. 10, ADEL, IOWA. **FREE BOOK**

WRITE FOR BROWN FENCE BARGAIN BOOK AND SAMPLE
Over 25,000,000 rods Brown Fence already sold to 400,000 farmers. Factory Prices. Freight Prepaid. 150 styles, 13¢ per rod up. Gates and Steel Posts, too! Write postal. **THE BROWN FENCE & WIRE CO.** Dept. 21E • • • Cleveland, Ohio

ASK
our sales office nearest you for prices and terms on fertilizers adapted to your soil and crops.
Send for Booklet—Free
The American Agricultural Chemical Co.
New York, Baltimore, Philadelphia, Buffalo, Cincinnati, Cleveland, Detroit, Boston, etc.

PILLING CAPON TOOLS
Easy to use
MORE THAN DOUBLE YOUR COCKEREL PROFITS
Capon grows twice as large on the same amount of feed and bring twice the price per pound.
Complete set of reliable, practical, easy-to-use Capon Tools \$2.50
—full, illustrated instructions included. Parcel Post prepaid.
G. P. PILLING & SON CO., Phila., Pa.
Send for FREE Capon Book

Build It Yourself
Here is the first real, practical idea for a perfect home-made concrete mixer ever yet produced. Endorsed by all farm papers, by concrete engineers and by hundreds of users. You make it with a few 2x6's, an oak barrel and a few castings. Send your name and get full instructions and
Blue Print PLANS FREE
It will mix 2½ cu. ft. at a batch, has self-tilting dump, runs by hand or 1 h. p. engine. Will keep from 2 to 6 men busy. Does finest work, equal to any \$200 machine—and costs you almost nothing in comparison. Just drop me your name on a post-card today. Full instructions and blue print plans will come at once. FREE.
SHELDON MANUFACTURING CO., Box 2416 Nehawka, Neb.
Mix Your Own Concrete

Letters From a June Bride

Betty Gets Her House Settled



D EAREST SISTER: I wish you could see how cozy the house looks, now that all the furniture has come and we are at last really settled, even to the soap and towels in the "spare" room, all ready for any unexpected overnight guest. For the first few weeks things were arriving almost every day, and the team was kept busy bringing them from the station. Loading the piano and hauling it over the rough roads, without so much as causing a scratch, was Ed's greatest triumph, and he is still telling, with pride, how the station agent warned him that he had better not attempt it without four horses, and how he told him, "Be gollies, that ain't nothin' to what them hosses kin do." When Billy and I saw the wagon bumping down the road, with the great wooden crate on top, I must confess we were somewhat dismayed at its size. Indeed, I began to be afraid that, in order to house it at all, a special room would have to be built for it out in the front yard. Billy said he had often heard of people building a house around a fireplace, and he saw no reason why the same principle shouldn't apply as well to a piano. The situation seemed a little more hopeful, however, when the covering was removed, though even then Billy looked most dubious while he mentally compared the width of the front doorway with the broad proportions of the piano.

"Come on now," Billy said at last, after studying the situation and deciding on the course of action, "let's make one big try at any rate." And so it was that, with much puffing and blowing on the part of Ed and with such verbal encouragements on the part of Billy, as "Lift her up a bit. That's it. To the right a little now. Whoa, there! Steady! There she is," the great thing moved forward on its improvised wooden rollers and, miracle of miracles, on through the doorway and around the turn and into the sitting-room against the inside wall.

Ever since the piano came we have been having nightly concerts. Billy, with his natural "turn" for music, has already learned to play the records like a real artist, while I am still laboring to master the simple mechanical part of the playing, which makes my attempts sound more like the corner "grind organ" that used to fascinate us children when we visited Aunt Mary in the city. But I am hoping to show some signs of improvement soon. We can never tell you and Father how much this wonderful gift will mean to us. I'm glad you sent some classical music as well as all the lively popular tunes, for we shall have an opportunity now really to learn to understand the worth-while things as we could never have done before.

You will be interested to know about all the presents that have come, who sent them, etc., but I'll save most of these details until you come and can see everything for yourself. But I must tell you about some of them, which are proving so useful to me in my house-keeping.

NEEDLESS to say, I am using my fireless cooker every day, and during the busy days of canning it is proving invaluable. I really don't see how I could have got along without it. When I start the stove at breakfast time I put the radiators on to heat, and any meat or vegetables I want to cook for dinner can easily be prepared along with the after-breakfast dish-washing. By the time the dishes are out of the way they have had time partially to cook, and can be removed to the cooker, where I don't have to think about them again until time to put dinner on the table, which gives me an uninterrupted morning for canning. I find the cooker most useful also on Sundays and days in town, when I can come home to a hot and well-cooked meal without that awful last-minute rush.

Uncle Peter and Aunt Priscilla sent us a check to get "something you want for the house." After talking it over we finally decided to buy a wheeled tray like one I had seen at the home-makers' exhibit of labor-saving devices. This is simply two trays on wheels (with a handle to push it) which enables me to carry all the dishes to and from the

dining-room at one time, without taking the hundreds of extra steps usually consumed in this process. While washing the dishes I place it next to my dripping pan, and all the dried dishes are set on it and wheeled at one time to the cupboard. Often, during these hot days, we have had supper on the front porch, when the tray serves as a very nice substitute for a table. Mrs. Green was so pleased with the idea, which she had never seen before, that she decided to make one out of an old washstand, which she did most cleverly by having wheels attached to the four legs and using the towel rack on one side as a handle. Mr. Green says he has an even better plan, and is going to make one out of the framework of an old baby buggy.

MOST of the little presents came by parcel post, which meant that we could get them right at our front gate, without taking any extra trips to town, just when the horses were so very busy here. I try to walk to the post box each day, so that I can get some regular outdoor exercise, even if something else has to be neglected. It is such a lovely walk through the woods, and the view at the crest of the hill is a real inspiration. Some day, when we have more time for "extras," I want Billy to build a rustic bench there, where I can sit and drink in the wonderful panorama to my heart's content. But so far we have only had time to put up our new mail box and a large wooden box for parcel-post packages, which will prove most convenient not only for any packages which come to us through the mail but also when we begin sending away our own products. We painted the box green, and the mail box white with our name and that of the farm in green letters, and I am sure the extra time it took to give these the finishing touches will be time well spent. A shabby mail box, to me, gives at once a shabby impression of the whole place. We hear a lot about how the beauty of the country is marred by unsightly signs tacked to fences and trees, but I think crooked, drunken-looking mail boxes are far worse, and are quite as telltale as torn, dirty curtains hanging in the parlor windows.

It has been pretty hard for me to keep all the letters and packages until supper to open, but we have adopted this as a permanent policy, and are going to try to adhere to it as strictly as you do to our family tradition of liver and bacon for Sunday morning breakfast. That gives us something interesting to look forward to at the end of the day, and you can imagine what happy evenings we have had with the home letters, the magazines, and our wonderful piano player.

Ruth sent me a card index cookbook. I have started it already, and have copied on separate sheets all the recipes you gave me of yours and Mother's. These are filed away, each under its own heading of Meat, Bread, Cake, etc. Then I've put a hook screw on the kitchen cabinet, and punched a hole in each card so that I can hang the recipe within plain view while cooking. Susie sent me a very practical tablecloth—not a real tablecloth either, but two runners about a foot wide made from Japanese toweling, which cross on the table. This toweling comes in very artistic patterns, usually a white background with figures in delft blue, bluebirds, iris, etc. I was surprised to find how inexpensive it was—only about 12½ or 15 cents a yard. She insisted upon telling me because, she said, she was sure I'd want to use it entirely, instead of the heavy table linen which always adds so much to the weekly laundry. I can wash and iron these in almost no time, and my table, set with the blue china, is really very pretty.

In spite of all the extra work of getting settled, I have managed to do quite a little canning, and the cellar fruit closet is beginning to look quite respectably filled by this time. Sugar is so high this year that I have decided not to can too much; but, of course, we cannot get along without some fruit this winter.

Betty

Does Coffee Disagree

Many are not aware of the ill effects of coffee drinking until a bilious attack, frequent headaches, nervousness, or some other ailment starts them thinking.

Ten days off coffee and on

POSTUM

—the pure food-drink—will show anyone, by the better health that follows, how coffee has been treating them.

"There's a Reason"

for

POSTUM

Sold by Grocers

Have Capewell Nails Used

In shoeing your horse—it pays. Saves expense because The Capewell nail holds best. In the leading shops of the country Capewell nails are used. They are considered the best—not the cheapest regardless of quality, but the best at a fair price.

KITSELMAN FENCE

Get It From The Factory Direct
HORSE-HIGH, BULL-STRONG, PIG-TIGHT
Made of Open Hearth wire, heavily galvanized—a strong, durable, long-lasting, rust-resisting fence. Sold direct to the Farmer at wire mill prices. Here's a few of our big values:
26-inch Hog Fence - 15 cts. a rod.
47-inch Farm Fence - 21 cts. a rod.
48-inch Poultry Fence - 27 cts. a rod.
Special Prices on Galv. Barbed Wire.
Our big Catalog of fence values shows 100 styles and heights of Farm, Poultry and Lawn Fence at money-saving prices. Write for it to-day. It's free.
KITSELMAN BROS. Box 271 Muncie, Ind.

ABSORBINE

Will reduce Inflamed, Strained, Swollen Tendons, Ligaments, Muscles or Bruises. Stops the lameness and pain from a Splint, Side Bone or Bone Spavin. No blister, no hair gone. Horse can be used. \$2 a bottle delivered. Describe your case for special instructions and Book 2 K Free.
W. F. YOUNG, P. D. F., 23 Temple St., Springfield, Mass.

Save Your Worn Tires

GET 5,000 MILES MORE
service by "half-soling" them with Steel Studded Treads the same as European Motorists have been doing for over 3 years. 30,000 American Motorists have done this in the last 8 months and are saving \$50.00 to \$200 a year in tire expense.
5,000 Miles Without Puncture is the guarantee you get with every Durable Steel Studded Tread.
We Deliver Free without a cent deposit, prepay the express and allow you to be the judge.
Special Discount offered to motorists in new territory on first shipment direct from the factory. Stop throwing away your worn tires—mail the coupon below for details—he sure and put in your tire sizes.

Get 5000 More Miles
MAIL THIS COUPON
The Colorado Tire & Leather Co.
839 Tread Bldg., Denver, Colo.
H39 Transportation Bldg., Chicago
720-258 Woolworth Bldg., New York City
Without obligation send me free catalog, copy of guarantee, sample and booklet "10,000 Miles on One Set of Tires."
Name
Address
My Tire Sizes are

This mother was a confirmed borrower of trouble, but she turned over a new leaf in time to avoid wrinkles

A Vacation From Worry

The Family Trouble Prophet Hires a Professional Substitute

By ANNIE HAMILTON DONNELL

MRS. HEATH'S anxious voice drifted down the hall, down the stairs: "Did Caroline take an umbrella?" A cheerful sixteen-year-old voice drifted back up the stairs, up the hall:

"I don't know. I'll count 'em." "I know she didn't," groaned the anxious voice in the period of waiting, "and she had all her best clothes on, as she always has when it's cloudy." "She never! Here's four in the umbrella stand. But don't you go to worrying, Marmie; it only looks like rain."

Mrs. Heath resumed her darning and worrying. She was a tiny woman who should have been pink and white and smooth, unworried. Faint care lines, as it was, crisscrossed her gentle face. Umbrellas were but one item of her daily program of anxieties. She was the family worrier—all the possible and impossible calamities that might or might not happen to seven lusty Heaths happened to them in her imagination.

"That lovely hat! Caroline is so care— Mercy, I'm sure I smell smoke!" She hurried to the head of the stairs. "Mig! Mig!"

"Yes'm," again the cheerful young voice.

"You there?" Mrs. Heath was mildly addicted to needless questions. "I smell fire. Is the baby anywhere near the matches?"

The baby was five and utterly unreconciled to his mortifying title.

"He's in the same room, but he's on the floor, and the match—"

"Then it's Thyrsa. She's probably lighting the fire with kerosene. Run, Mig, quick!"

"I will. I'll put her out—never you mind, Marmie!"

There was a scurry of light feet followed by clumping little ones. It was the baby who reported, a moment later. "Nothin's burnin' 'cept the fire," he shouted at the top of good lungs.

"Well, it's a mercy! Something else will burn one of these days, with everybody so reckless. We shall wake up some morning and find ourselves burned to a crisp. I wonder where I dropped that needle! Now someone will step on it and have the lockjaw! I sha'n't take a minute's peace until I find it."

She took very few minutes' peace, day or night. Did Griffith II read his Latin over the second time before he went to school? Had Griffith I remembered to order coal? Was Thyrsa coming down with another earache? What if the new neighbors turned out to be the wrong kind? What if the dressmaker got Mig's dress too short, or too long, or the sleeves skimpy? What if a hundred other dreadful things happened?

The seven other Heaths enjoyed life in a healthful, untroubled fashion that to the little family worrier appeared incomprehensible. The weight of the cares they ought to feel and the worries they ought to worry added to her own full quiver until the burden grew almost too heavy for her slender shoulders. It happened that this particular afternoon was destined to be the fateful one. Quite suddenly and unpremeditatedly the half-mended stocking dropped from Mrs. Heath's fingers.

"I'm too tired to worry about another thing!" she said with a curious air of finality. "Somebody else must do it now—I've done my part." Her tired eyes had a strained look. She was conscious of a sudden desire to change places with the baby so that she might cry. She put her hand to her head. If anything should snap—she had never been afraid before that anything would snap.

"I've got to stop worrying," she said aloud. "Henrietta Heath, you listen to me. When I say 'three' you stop!" She had left her little straight-backed sewing chair and sunk into Griffith I's soft rocker. "One—two—" she counted slowly, "three! Have you stopped, Henrietta Heath?"

"I HAVE stopped," nodded Henrietta Heath from the depths of the great chair. She closed her eyes in relaxed abandonment of earthly cares. But unconsciously she worried on because she was not worrying! Someone must worry—a helpless family could not be left in the lurch like this. She must find someone to take her place—

"I'll advertise," she thought, and got paper and pencil.

The wording of the notice gave her little trouble; it was odd how her pencil flew from line to line. Things one might suppose to be difficult and unusual appeared simple enough now to her. She read the advertisement aloud. It sounded well.

"WANTED—A working worrier for a family of seven. Only competent person need apply. Permanent situation for the right one. References. Address Henrietta Heath, Crescent Terrace."

The Pineboro "Evening Call" went to press at noon. It was too late for to-day, but none too early for to-morrow. Mrs. Heath, in the calm conviction of doing the right thing in the right way, put on her

things and departed leisurely for the printing establishment of the "Evening Call."

"I wish this advertisement inserted in to-morrow's paper," she said to the polite person who came forward to meet her. "I am sorry it could not have been— It is too late for to-day, I suppose?"

"M—m, yes, certainly, madam." The polite person was reading the little slip of paper. He looked up unsmilingly. When he spoke his tone was solicitous.

"The paper has gone to press. We could only get out an extra. If there is great hurry—" He waited.

Mrs. Heath shook her head slowly.

"To-morrow will do," she said, "but not a day later. And I shall be obliged if you will give it a prominent place."

"On the first page, madam. Give yourself no worryment."

OF COURSE she would not do that. Worryments were behind her now. But it worried her. The helpless family—the helpless family! "Only till to-morrow," she comforted herself.

The next day, just before tea time, Mrs. Heath was summoned by Thyrsa to the parlor. A stranger in a black dress rose at her entrance. There was only time to note the extreme gravity, bordering upon sourness, of the stranger's face before a nervous

up to this solemn, sour person in black! The solemn, sour person wrote the names in a small blank book, with capable flourishes.

"Have you any preference as to which one I worry about first?" she inquired, snapping the covers of the book together. "We are losing time. I should like to begin at once."

"The baby," faltered the baby's mother. He was a good one to begin with and end with. At this very minute—

"Oh, I'm afraid he's playing with matches, or falling down the cellar bulkhead!" worried the professional worrier in a businesslike manner. She entered upon her work with a perfect acquaintance with its requirements—her tone, her look, her motions were all in harmony with her calling.

Mrs. Heath found herself watching her with fascinated gaze. It was as if she was watching herself from a little distance. The anxious lines and creases in the stranger's face filled her with horror, for they might all be in her own face. She put up her hand to feel and see. They were there!

A network of fine lines threaded the forehead of the other woman. More lines ran down her cheeks, more still from the corners of her mouth. Henrietta Heath, in a little whirl of panic, ran to her own room and peered into the mirror. The face she saw there resembled faintly the lined face of the woman she had engaged to do her worrying—there was no doubt of the resemblance.

Downstairs the girl twin was drumming scales on the piano, and wrong notes drifted upward discordantly, but the girl twin's mother laughed softly. She went back to the stranger; this was her business.

"Sylvia is practicing wrong," she said.

"I KNOW—I know," snapped the stranger irritably, "but I can't attend to everything at once! I'm worrying about Griffith II just this minute, for fear he'll slip under the gate instead of waiting at the railroad crossing. I can't worry about two at once with any sort of success. That reminds me, I forgot to say that if I am expected to work nights I shall charge double wages. Night work is very exhausting."

"Yes," murmured little Mrs. Heath, as one who knew, "I always worried nights, too. You can charge extra."

The days that followed the advent of the professional worrier were easy days to the weary one released from all care. She grew round and smooth, laughed often, sang little snatches of song. The children exulted.

"Marmie's growing young!" Mig boasted. "See, Papa, how lovely she is!"

"Yes," Griffith I agreed with unctious, and added little praises of his own in Marmie's ear.

Caroline, the baby, and all the others admired enthusiastically. Only the hired worrier worried now in the household of the Heaths. Then like a bolt from cloudless sky came the end of this satisfactory arrangement.

Henrietta Heath, at her peaceful, unworried mending one morning, beheld the worrier standing in the door with unwonted excitement.

"I've come to give warning." She spoke eagerly. "I can't wait to give two weeks' notice. I belong to the union and they've ordered me to quit work."

"I'M SORRY I can't stay to finish worrying about the baby's tooth that's coming in crooked, but you'll have to finish it out. Miss Caroline's stooped shoulders came next on my list. I planned that and Miss Sylvia's run-over heels for this afternoon." She took out her memorandum and consulted it with knit brows, muttering items under her breath: "Master Griffith's cowlick, Thyrsa's ears, thin places in sitting-room carpet, m-m-m, ink spots on tablecloth, m-m-m—" her voice trickled out into indistinctness. Suddenly she folded the paper and extended it toward Mrs. Heath. "It may be a help," she said.

"Good-by," the worrier said, and turned away. But the other woman called her—shrieked after her:

"Come back! Come back and get your list! Take it with you. I don't want it. I tell you I'm not going back to worrying. I won't!"

"Why, Marmie!"

It was Mig standing over her.

"You screamed out in your sleep. You must have had an awful dream!"

The little mother swept the little daughter into her arms, laughing joyously the while. "Then I woke up in time—I mean I went to sleep in time."

"I came up," Mig panted breathlessly, "to tell you the baby's torn a great hole in his rompers—awful! And Sylvia's practicing G flat instead of A flat."

"Mig, listen to me! There are worse things than holes, and G flats."

Henrietta Heath ran to her mirror and gazed at herself in its unflattering depths. She began to pinch and knead the sweet face there. "I'll pinch 'em out—I'll knead 'em out!" she said. "Then I'll start again."

"Worrier—Yes. Professional. Forty years' experience"



voice announced the purpose of her visit: "I came in answer to your advertisement in to-day's 'Evening Call.'"

"Oh! Oh, yes, you are a—a—" Mrs. Heath faltered in palpable embarrassment.

"Worrier—yes. Professional. Forty years' experience. Thirteen years and a half in my last place. Lady died, man in the asylum. I can't refer you to them, but—"

"Yes, oh, yes! I'd like references," little Mrs. Heath faltered weakly. This professional worrier abashed her strangely. In this presence she herself seemed such a novice—amateur. The stranger went on in a matter-of-fact tone:

"In my place before last I worried for a family of six—Mrs. Elbertus Lee, Derry Bridge. Family numbered only three in the place before that, but the work was hard, very hard. I have worked in only three places." The latter was said in a tone of pride. To have worried, professionally, for forty years in but three places appeared occasion for pride. Mrs. Heath was only thirty-four. She blushed uncomfortably.

"Well, if you think I'll suit I'm ready to begin at once. We can give each other a trial anyway, but I want one thing understood at the start—"

"Yes?" hesitated Mrs. Heath.

"And that is that I'm not to be interfered with. I'm to do it all."

"There are seven. Seven is a good many—"

"I am perfectly competent to do all the worrying for seven. It must be left entirely to me. I suppose the seven includes you?"

"Dear, no!" The little amateur worrier had never worried about herself. It had not occurred to her.

"Eight, then. Names, please? I wish to get acquainted with my cases before I begin work, and any little hints that you can give me—"

"Griffith I, Griffith II, Caroline, Mig, the twins, the baby," recited the wife of one and mother of all the rest in rather a tremulous voice. A sob seemed to be tangled up in her throat. Was she giving them all



Victrola VIII, \$40
Other styles \$15 to \$400

THE world's greatest bands parade before you if you have a Victrola. Sousa's Band, Pryor's, Vessella's, U. S. Marine Band and other famous organizations—all just as real as hearing the bands themselves. Hear them at any Victor dealer's. Write to us for catalogs.

Victor Talking Machine Co.
Camden, N. J.



Victrola



Shoo Fly Plant
KEEPS FLIES OUT OF THE HOUSE

Flies will not stay in a room where it is grown. Very mysterious, but tests show such to be the case. Blooms in a short time (60 days from planting). Flowers both summer and winter. Package of seed by mail with catalogue, 10 Cents. JAPAN SEED CO., Desk N, South Norwalk, Conn.



CLARK'S FRUIT JUICE STRAINER

Supplants crude methods holding jelly bags. Uses any number bags at one time. Fits any ordinary vessel. For milk, and as universal strainer has no equal. Now is the time to make your own grape juice, rich and delicious, from recipe sent with strainer. Complete with serim and funnel bags, m. o. 50c.

J. A. CLARK, Westerville, Ohio



Rider AGENTS Wanted

in each town to ride and show a new 1917 model "RANGER" bicycle. Write for our special offer on a sample to introduce. DELIVERED FREE on approval and 30 days' trial. Send for big free catalog and particulars of most marvelous offer ever made on a bicycle. You will be astonished at our low prices and remarkable terms. 94 STYLES, sizes and colors in Ranger bicycles. Most complete line in America. Other guaranteed models \$11.95, \$14.75 and \$17.60. A few good second-hand bicycles taken in trade, \$3 to \$8 to clear.

Tires, lamps, wheels, sundries, parts, and all bicycle supplies at half retail prices. Do not buy until you get our catalog and offers. Write Now.

MEAD CYCLE CO., DEPT. H83 - CHICAGO



HOOSIER STOVES & RANGES FREE

To try in your own home 30 days free, no matter where you live. Show your friends. Send it back at our expense if you do not want to keep it. Hundreds of thousands in daily use. Perfect bakers, efficient heaters, made of high grade material, beautifully finished, smooth design, guaranteed for years by our Two Million Dollar Bond.

Ask your dealers to show you Hoosier Stoves. Write for our big free book showing photographs, describing large assortment of sizes and designs to select from, explaining our free trial. Send postal today. Write your name and address plainly. No obligations.

HOOSIER STOVE CO.
126 State St., Marion, Ind.



Put up your fruit without stirring—use a **"Wear-Ever"** Preserving Kettle

Fruit that is not stirred presents a beautiful unbroken appearance. In "Wear-Ever" utensils your food cannot easily scorch or burn—they make "putting up" fruit a pleasure.

Replace utensils that wear out with utensils that "Wear-Ever"

The Aluminum Cooking Utensil Co.
New Kensington, Pa., Dept. 57.
(or if you live in Canada) Northern Aluminum Co., Ltd., Toronto, Ont.

Send prepaid, 1-qt. "Wear-Ever" Stew Pan. Enclosed is 25c. in stamps or coin—to be refunded if not satisfied. Offer good until September 29, 1916.

Name
Address

What Every Woman Needs



No. 3131—Blouse with Convertible Collar. 40 to 50 bust. The price of this pattern is ten cents



No. 3105—Shirt Waist with Low or High Neck. 34 to 46 bust. Pattern, ten cents



No. 3106—Box-Plaited Waist with Novel Strap Collar. 34 to 44 bust. The price of this pattern is ten cents



No. 3128—Blouse with Buttoned-down Collar. 14 to 20 years. The price of this pattern is ten cents



No. 3105



No. 3108—Skirt with Yoke and Side Pieces in One. 24 to 32 waist. Width, three yards. The price of this pattern is ten cents



No. 3135—Panel Skirt with Over-skirt Effect. 30 to 38 waist. Width, two and three-fourths yards. The price of this pattern is ten cents



No. 3128



No. 3108

Order these patterns from Pattern Department, FARM AND FIRESIDE, Springfield, Ohio.

Copyright, 1916, by The Crowell Publishing Company

Housewife's Club

Green Corn for Winter Use

THERE is a possibility of having a green corn on the cob for the Christmas dinner if one only prepares for it, according to Miss Bab Bell, woman's lecturer of the State Board of Agriculture of Missouri. Here's her recipe. We should like to hear from those who have tried it, as to the flavor and quality of corn on the cob prepared in this way.

The thought of roasting ears in the winter time makes the mouth of the grown-up "water" as surely as does the thought of stick candy or ice cream appeal to the appetite of the small boy with a newly acquired nickel in his pocket to make the desired purchase. They are not an impossibility.

As with all vegetables containing but little acid, corn should be canned the same day as gathered, and as soon after picking as possible. This will prevent "flat sour."

Remove the husks and silk, and grade for size. Blanch on the cob in boiling water from five to fifteen minutes; plunge quickly into cold water. Pack ears, alternating butts and tips, in half-gallon glass jars or gallon tin cans. Pour over boiling hot water and add two level teaspoonfuls of salt to each gallon. Place rubbers and tops in position. Seal partially but not tight. Sterilize in hot-water bath outfit three hours, one period. Remove the jars and tighten the covers.

A hot-water bath outfit can easily be arranged by placing a wire or wooden rack in the bottom of a wash boiler or a pail, thus raising the jars an inch and a half from the bottom of the boiler and preventing their becoming hot too suddenly.

When sweet corn is taken from the jar or tin can for table use, remove the ears as soon as the jar or can is opened. Heat the corn, slightly buttered, in a steamer. Do not allow the ears to stand in water or to be boiled in water a second time.

The method of canning corn cut from the cob is similar to the method followed in canning the whole ear.

SUMMER BUTTER FOR WINTER USE

When butter is only 30 cents a pound we have some to sell, but when it goes up to 45 and 50 cents in the winter we

have had to buy. In order to prevent this I have tried the following plan: Make butter as usual, only allowing one teaspoonful of sugar to each four pounds of butter, work in with the salt, mold into pounds, and wrap in cheese-cloth or thin muslin. Pack pounds in a stone jar. Make a pickle of four teaspoonfuls of salt, one tablespoonful of sugar, and one-fourth teaspoonful of saltpeter to each gallon water. Pour over butter and cover.

MRS. P. W. D., Kansas.

A KITCHEN WASTE BASKET—I had always needed a waste basket in the kitchen, especially in summer, when I kept the stove burning as little as possible. I got a vegetable basket about 18 inches high and 12 inches in diameter, and lined it with white oilcloth. It is large and useful, and is always clean because a wet cloth rubbed over it will clean it immediately. My cookbooks are also covered with white oilcloth.

C. M., Illinois.

TO ECRU LACE—I colored some lace yesterday and got a beautiful soft shade of brown. I turned out just enough boiling tea to wet eight yards of wide coarse lace, and immediately rinsed it in as hot water as I could bear on my hands. The result was all that could be desired.

C. E. L., New Hampshire.

TO CLEAN POWDER PUFFS dip them in alcohol. This will in no way impair the softness of the wool surface.

L. G. C., Massachusetts.

New Puzzles

Concealed Geography

You would not think that a town could hide in a letter, but I assure you that not only one but several of them can do it. How many towns are hidden in this short letter from a traveler:

"We made a light royal boat with a mainsail. I was the skipper that came to a bad end."

Answers to Puzzles

Puzzles Printed Last Issue

Name the Animal

The animal's name is rhinoceros.

Ready Now!

This Book Is Yours Free

Our Free Fashion Catalogue



Write for it Today

DON'T fail to send for this beautiful illustrated Fashion Book. Ask for Catalogue No. 74 FF. We will gladly send it by return mail—you can't afford to be without this beautiful illustrated Fashion Book.

Two Charming Styles



1FF97. Tailored Suit, of durable all-wool Poplin. The coat is one of the new semi-fitted models and has a stylish cape collar of velvet finished with a border of poplin. The collar may be buttoned up around neck. The coat flares and measures 36 inches in length. The sleeves and sides are trimmed with bone buttons and the cuffs are of velvet; lined with guaranteed satin. The skirt is a full flare model with side plaits. Comes in black, navy blue, green or brown. Sizes 32 to 46 bust, 23 to 32 waist and 37 to 44 skirt length; also to fit misses and small women, 23 to 28 waist and 37 to 40 skirt length. Price, mail or express charges prepaid **\$17.98**

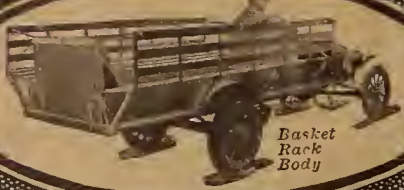
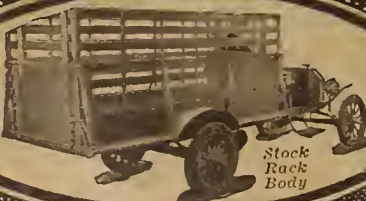


35FF96. One of the latest style dresses; made of reliable all-wool men's wear Serge and satin Charmeuse. The body of waist is serge and the sleeves are of the satin material, finished with serge cuffs and trimmed with military braid and tinsel garniture. Waist has a fancy collar of white faille silk trimmed with ball buttons; at the back is a belt of serge trimmed with braid and tinsel to match cuffs. The skirt is gathered at the waist line, and falls in pretty rippling folds. It has a pointed yoke effect at the back. Dress comes in navy blue, plum or dark green. Sizes 32 to 46 bust, the skirt length 40 inches; also for misses and small women 32 to 38 bust, skirt length 38 inches. Mail or express charges paid by us. **\$12.98**

WE pay all mail or express charges to your town and we guarantee to please you or refund your money at once.

BELLAS HESS & CO

WASHINGTON, MORTON & BARROW STS.
NEW YORK CITY, N.Y.

Basket
Rack
BodyFlat
Rack
BodyHog
Rack
BodyFlat Rack
Body,
scoop board
downGrain
BodyHigh Side
Flare-board
BodyRack Body
for
FertilizerStock
Rack
Body

Eight Truck Bodies in One

SMITH Form-a-Truck

Thousands Sold to Farmers—the Ideal Utility Truck

Over 44,000 already contracted for out of a total production of 50,000, with farm owners among biggest users.

Smith Form-a-Truck, the sales sensation of the year, is the accepted utility truck for all farm owners.

For truck and garden farmer, dairy farmer, grain farmer and stock grazer, the one truck that has demonstrated in all types of service that it will go anywhere any horse-drawn truck will go, do its work at lower cost, at greater speed and greater efficiency.

The Smith Form-a-Truck is an attachment which, at the cost of \$350, combines with any Ford Chassis to make a fully guaranteed one-ton truck.

It is sturdily built, of the best materials and according to the best mechanical design. Frame is steel, channel section 4 in. deep. Fits over the Ford chassis throughout its entire length after the rear wheels and the body have been removed.

It lengthens the wheelbase to 125". Uses the Ford rear axle as a jackshaft for double chain drive. Rear wheels are 32x3 1/2", with

Firestone, solid truck type tires. Rear springs are semi-elliptic, with auxiliary cross spring which rests on the rear axle when the truck is fully loaded.

Loading space back of the driver's seat is 9 feet long.

Any two men can install the Smith Form-a-Truck on a Ford chassis in a few hours. After it is installed, it forms a permanent truck construction of great strength and wonderful service.

12 to 15 miles an hour over roads and a much higher rate of speed under all conditions of hauling than can be maintained by horse-drawn trucks.

6,000 to 8,000 miles per set of tires—12 to 18 miles per gallon of gasoline. These are service results you get from the Smith Form-a-Truck on your farm.

Now the Eight-in-One Farm Body

Every possible use for a truck on a farm is covered in this new collapsible body — an exclusive Smith Form-a-Truck feature that cannot be had with any other make of truck. We are carrying the wonderful adaptability of the Smith Form-a-Truck for farm service to the highest possible point in our new convertible body.

Any desired combination secured without tools. Simply use levers, which are a part of this wonderful body construction. Changes made instantly from one type of body to another.

Study illustrations in panel. They show just what you can get.

Wonderful Opportunity for Dealers

Without the new convertible body, the Smith Form-a-Truck has been a tremendous business builder for automobile dealers.

Now, with this convertible body, with eight distinct body types in one, combined with the wonderful adaptability of the Smith Form-a-Truck for every type of service and with the startling low price, no dealer can afford to be without Smith Form-a-Truck dealership. Write or wire for full information TODAY.

And this body is furnished at only a slight additional cost over the original cost of the Smith Form-a-Truck attachment itself.

Write for complete descriptive booklet of this convertible body.

Save money, time and investment by taking advantage of this tremendous development in truck building. Horses on the farm are rapidly becoming obsolete as they are in any other line of business requiring heavy hauling.

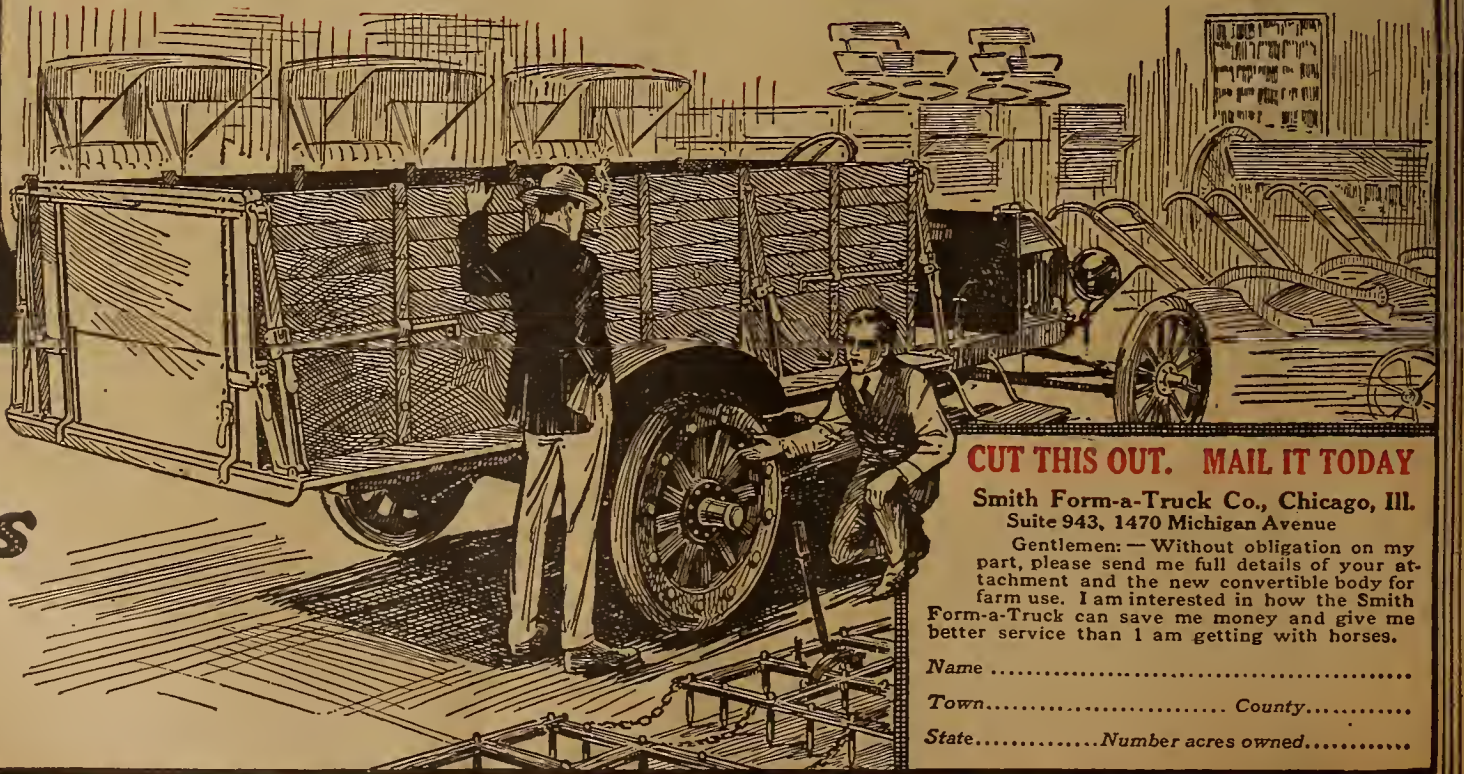
The Smith Form-a-Truck, with the new convertible body, is the real solution of economical, satisfactory haulage that saves time, money and equipment cost and gives the highest type of service in every type of work you can ask it to do.



and a Ford
makes a guaranteed
One-Ton Truck

**SMITH
Form-a-Truck
COMPANY**

1470 Michigan Ave., Chicago, Ill.



CUT THIS OUT. MAIL IT TODAY

Smith Form-a-Truck Co., Chicago, Ill.
Suite 943, 1470 Michigan Avenue

Gentlemen:—Without obligation on my part, please send me full details of your attachment and the new convertible body for farm use. I am interested in how the Smith Form-a-Truck can save me money and give me better service than I am getting with horses.

Name

Town..... County.....

State..... Number acres owned.....

21/24
More Than 600,000 Copies Each Issue

LIBRARY

RECEIVED

AUG 30 1916

U. S. Department of Agriculture

FARM *and* FIRESIDE

The National Farm Paper - Twice a Month

ESTABLISHED 1877

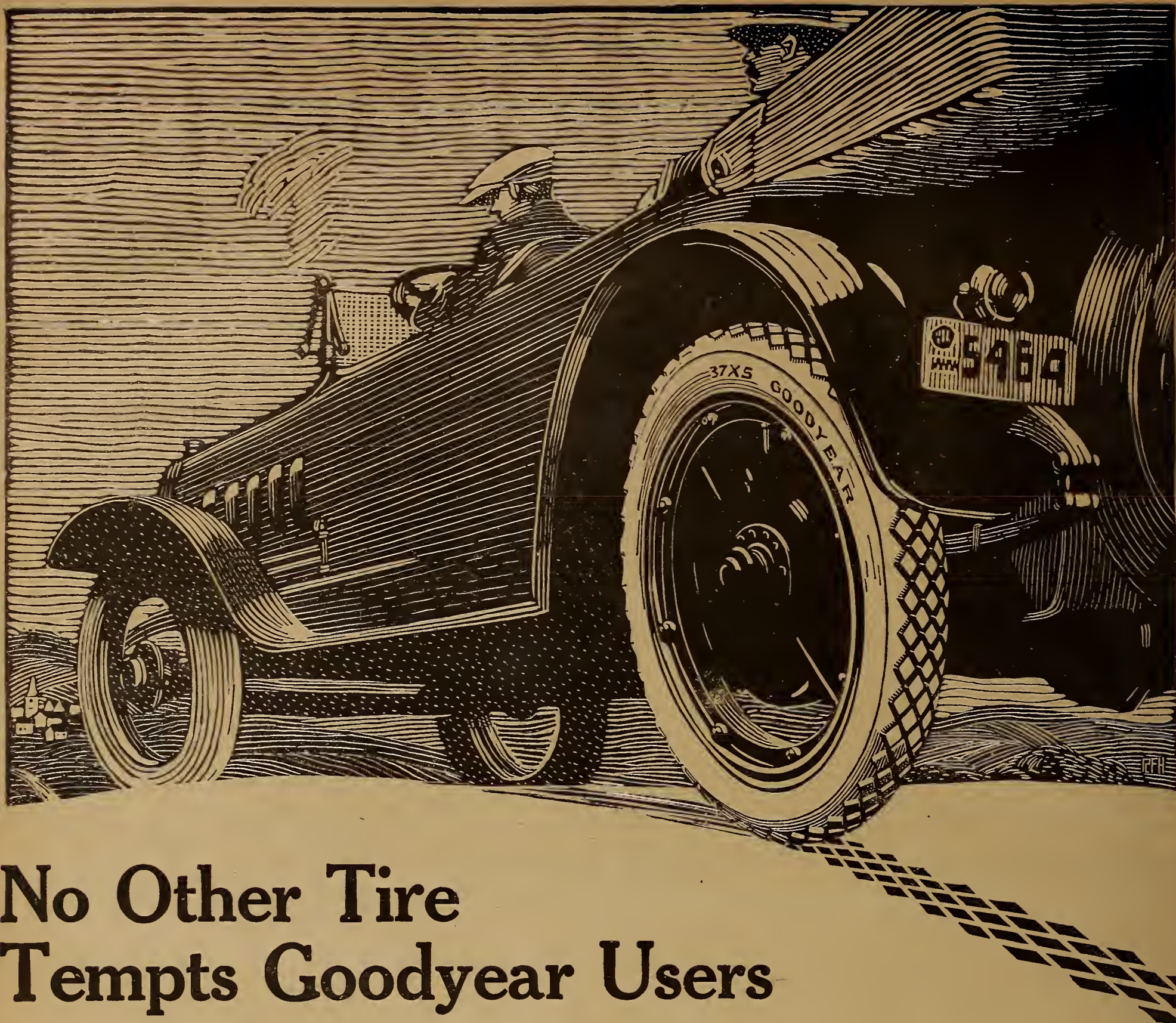
5 cents a copy

Saturday, September 2, 1916

Eastern Edition



The Power That Never Tires



No Other Tire Tempts Goodyear Users

THERE are still thousands who think that one tire is much like another.

But the largest single group of tire buyers in America evidently does not think so.

The proof of this is, that they continue to buy one Goodyear equipment after another, year after year.

If they did not prefer Goodyear Tires to any others, they would surely be tempted away by the lower prices on scores of others.

But they are *not* tempted away.

Goodyear branches, Goodyear Service Station Dealers, Goodyear salesmen all say the same thing—that these customers buy, and buy, and buy again.

Goodyear buyers are sane, clear-headed, careful buyers like yourself.

They firmly believe in Goodyear quality and Goodyear features, because they have found that they make these tires go farther, last longer and so cost less in the end.

Goodyear No-Hook Tires are made *strong, safe and sturdy* by these unique advantages:

They are easy to put on and take off because they do not rust fast to the rim.

Blow-outs are lessened by our No-Rim-Cut Feature.

Punctures and Skidding are reduced by our Double-Thick All-Weather Tread.

Loose Treads are diminished by our On-Air Cure.

Blowing off the rim is prevented by our Braided Piano Wire Base.

Goodyear Tires, Heavy Tourist Tubes and Tire Saver Accessories are easy to get from Goodyear Service Station Dealers everywhere.

The Goodyear Tire & Rubber Company
Akron, Ohio

GOODYEAR TIRES

AKRON

FARM *and* FIRESIDE

Published Twice a Month by THE CROWELL PUBLISHING COMPANY, Springfield, Ohio

Copyright 1916 by The Crowell Publishing Company

Vol. 39

Springfield, Ohio, Saturday, September 2, 1916

No. 24

Tractor Tames New Land

Where a Man Clears Fifty Acres and Plants Them in Ten Weeks

By G. T. WYCKOFF

I CAME to Marinette County, Wisconsin, the middle of August, 1914, and began to clear my land about the first of September. It was full of oak and pine trees and thickly scattered with grub oaks, underbrush, white and Norway pine stumps. So I bought a tractor with 12 horsepower on the drawbar, and a 10,000-pound-test steel chain to pull with. I found it took one man on the engine and one to handle the chain.

We pulled up trees that were 18 inches through. The small grub oaks and underbrush were left to be plowed under, as my plow will cut off all these roots, and the harrow throws them on top of the ground to be picked up later.

When everything was pulled out of the ground we went along with a big sled and hauled off all that could be piled on. This sled is 12 feet wide and 18 feet long, and is made of very heavy material.

We plowed with a 24-inch breaking plow at the rate of six acres a day. One man can do this, as he simply throws one lever down and the plow throws itself out of the ground. It would be impossible to throw this plow out of the ground by hand, as it has a six-foot landside. It cuts roots as large as 9 inches thick and 18 inches long without any trouble.

I then rolled the ground with a corrugated roller 10 feet wide and of the largest size. Next I disked, harrowed, and rolled the land at the same time. We pulled all these machines with the tractor, and I doubt if twelve horses could have done it. The disk is 10 feet wide. The harrow, which I had made, is an old-time A shape. The wings are of 6x6-inch hardwood, 18 feet long, and the crossbar of the same material, 8 feet long, set in so as to give the harrow a 10-foot spread. The teeth are made of 1¼-inch square steel pegs, and project 8 inches below the wings.

Clearing Cost But \$4.85 an Acre

THE ground was left alone until spring, when it was double-disked and harrowed ready for the planter. We then had 50 acres of land ready for potatoes, and had completed this work in nine weeks, at a cost of \$4.85 an acre. Horses could not have done this for less than \$20 an acre, and there would be no comparison in the length of time it would take even the best team.

I first dipped my potatoes in disinfectant to kill scab, and then cut them by hand. Two men will cut 70 bushels a day. We commenced on the first of June and planted 10 bushels to the acre and 8 acres a day. The cut seed was put into bushel potato boxes, and scattered along the end of the field. This is a great time saver. By the time the crop was in we had spent ten weeks' time on the 50 acres. They were cultivated four times with a mule team and a disk cultivator, and sprayed twice for bugs and three times for blight.

I shall dig them with a combined digger and picker, pulled by my tractor, and shall haul them to town with the tractor and store them in a seed warehouse.

I am now clearing and preparing more land for my next year's crop. Where the potatoes were this year I will sow clover and let it stand two years,



Here is a portion of Mr. Wyckoff's farm in northern Wisconsin. With his tractor he does combinations of work impossible with horses

plowing under the last crop of clover. This gives me a three-year rotation and will keep the soil free from diseases.

In New England

Tractor Proves Worth on 121 Acres

By MARCEL THERIAULT

MY FARM contains 121 acres, about 90 of which are in tillage and meadow land. It is a river-bottom farm, free from stones, is level, very light land, and easy to work.

Like many others, I have been reading for some time the advertisements of the different tractor manufacturers, and being confronted with the proposition of equipping this farm, which I had just purchased, I decided on an 8-16 tractor that will

the wheels being so wide, it would press the hay into the ground so that the rake did not pick it up clean. Now we are using horses for mowing and raking, doing the hauling with the tractor.

My machine is too large and too heavy for such work as cultivating, and horses must be used in that work. Much to my surprise I found it would go in places in soft meadow land and haul out good loads where horses would get mired, and I also thought that in going over a piece of land that was thoroughly harrowed it would tamp down the land so hard that it would be a detriment to the crop. But by using the extension rims I found that it only smoothed down humps, and a man could walk behind the tractor and sink in where the wheels had passed.

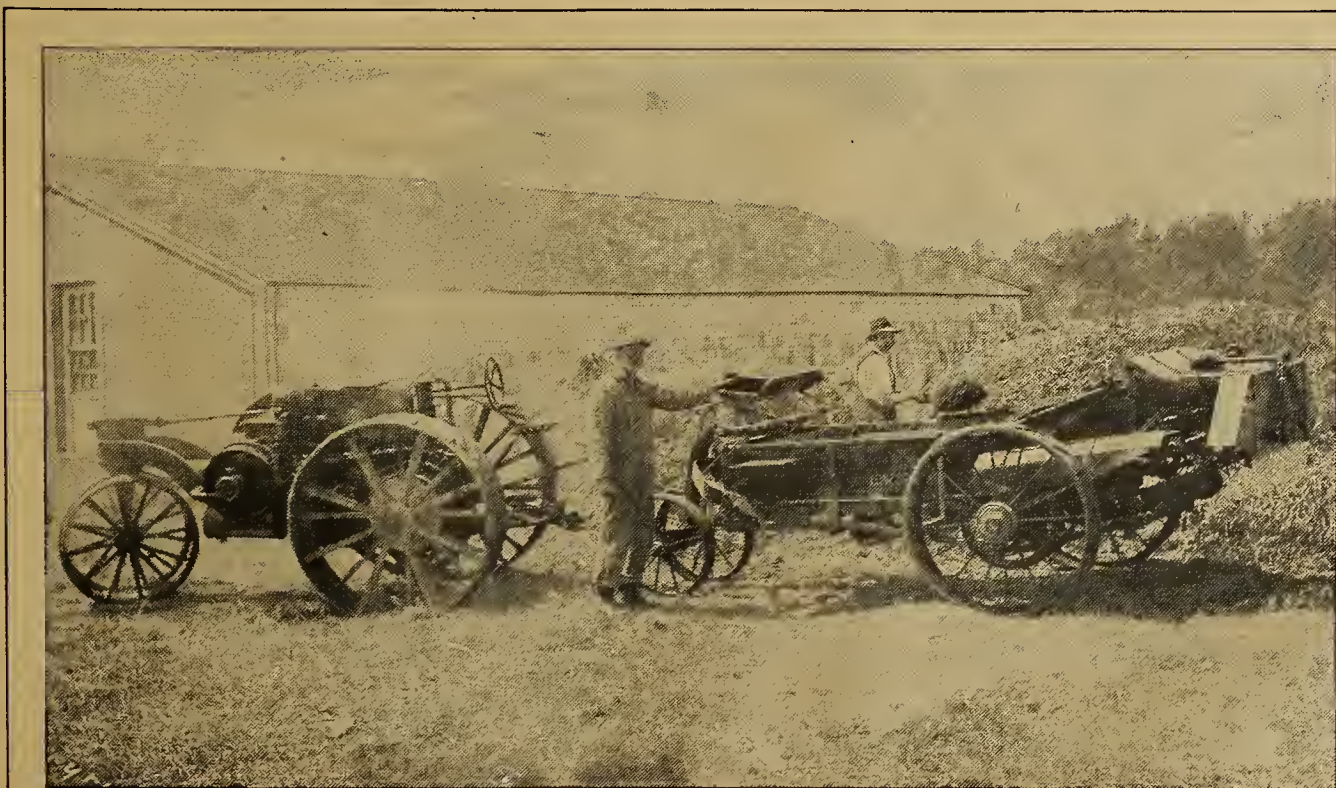
Some people believe that it takes an expert mechanic to operate this machine, but that also is a mistaken opinion. My manager on the farm is anything but a mechanic, and after watching the salesman for the company demonstrate this machine to prospective purchasers for half a day he started right in and ran it very satisfactorily all summer,

never having to call on the company for assistance. I don't mean by this that there is no difficulty to be had with a tractor, but our machine hasn't caused us as much worry as horses. It is easier to diagnose a trouble in the machine than it is to diagnose and remedy a disease in the horse.

As to the cost of operating, it costs us about \$1.40 for nine hours, paying 7½¢ a gallon for kerosene.

The problem which I consider to be the most material one confronting a prospective purchaser of a tractor is the question of depreciation. My tractor is not sufficiently protected against the dirt and dust which works into all the bearings, and in spite of careful lubrication there is very rapid wear.

But the company has made good in every instance, and I believe tractors will take the place of horses for all the heavy work on the farm in a short time.



Mr. Theriault's farm is in central New Hampshire. The tractor does the hard work, leaving the light tasks for horses, and doesn't eat its head off during long winters

Gas Power Under Test

Rules Which Put Farm Tractors on a Fair Basis for Comparison

By B. D. STOCKWELL

SEVERN of the eight main tractor demonstrations have now been held, but there will be many smaller ones at state and county fairs. The conclusions one carries away from such a demonstration may be correct or otherwise, according to the way it has been staged.

This year eight main demonstrations were laid out definitely several months in advance in eight different States. The purpose was to show all makes of tractors in the same field, at the same time. The policy of free attendance was also adopted, and the committee in charge was given instructions to sanction no demonstration where an entrance fee was charged.

The rules governing the demonstrations were supplied by the American Society of Agricultural Engineers and include the following regulations which provide fair play to all:

"All plows on any given gang must be set at the same depth, and kept there during the day's demonstration. This depth will be announced daily by general manager. Plows found operating otherwise will be ordered from the field for balance of the day's work.

"Each tractor shall bear a placard showing the brake horsepower of the engine, the revolutions a minute, the plowing speed in miles per hour, and the kind of fuel used.

"In all public demonstrations the motor or tractor must not run at more than 10 per cent above its catalogue plowing speed. Tractors may run on high gear with normal engine speed when disking, harrowing, seeding, etc.

"No machine will be allowed to operate with special equipment other than that designed for practical use with same. No spectacular methods will be permitted on the part of salesmen or others to attract crowds. The demonstration must speak for itself."

Altogether there are nineteen strict regulations, and the committee in charge is empowered to add such new rules as may be necessary. Tests of the resistance of the soil are made daily by means of a dynamometer so that ground to be plowed by each tractor may be fairly allotted. Last year there was considerable dissatisfaction because of the difference in the soil. Some machines were obliged to plow in heavy gumbo while others had a nice loam and made a much better showing. The dynamometer is used also for testing the maximum drawbar pull of tractors.

Thus at the main demonstrations every precaution is taken to put all tractors on an equal basis. At the smaller shows and fairs, where strict regulations like the foregoing are lacking, an accurate comparison of tractors is more difficult.

Most Work with Least Wear

ONE of the most misleading of all standards for comparing tractors is the speed. In plowing, for instance, from one third to one half the power of the tractor is used up by moving its own weight and the weight of the plows.

For that reason it is better to pull four plows at a speed of two miles an hour than two plows at four miles an hour. You can get just as much work done, and there is less wear and tear on the tractor because it travels only half as far and also only half as fast.

Another matter to consider is the convenience of hitches for different implements, both singly and in tandem. It is bad practice to drill the rear end of a tractor full of holes in order to provide drawbar pull at a certain place, and the best tractors do not require it.

The final test in buying a tractor, of course, is, "Will horses or a tractor do my work best?" Here are the chief advantages of each in the light of the best experience on both sides.

This is a list of points in favor of horses:

They have stood the test for centuries of useful service.

Their feed can be grown on the farm, and they help raise it.

They are self-producing and give about twenty years of service.

Their manure is a valuable farm by-product.

They are intelligent and in some work may be directed simply by word without need of

rein, thus saving the services and expense of one man.

They can go through water, mud, timber, and over rough and hilly places with comparative ease.

Though normally developing less than one horsepower, a horse can in an emergency, and for a short time, exert three or four horsepower.

One Man Handles More Power

HERE are some points in favor of tractors:

Tractors satisfy the demand for power to pull heavy machinery such as large gang plows, corn pickers, and road machinery. This work is too hard for horses.

Tractors can do belt work such as running ensilage cutters, grinding mills, and other high-speed machinery. This work cannot very well be done by horses.

Tractors need not be rested in hot weather, and are not "soft" in the spring when they are needed most.



The instrument with the large white dials is a dynamometer and registers the power required to pull the plows

Tractors are not affected by flies, bees, and sickness which may entirely upset and delay a season's work.

Tractors require no fenced pasture land, nor expensive barns, nor harness. They need but a simple shed for storage.

Tractors require no care, and likewise cause no expense for upkeep when idle.

Tractors enable the hay, grain, and other crops to be fed to cattle, sheep, and swine, thus increasing the profits of the farm.

Tractors cost less than \$100 per horsepower, whereas good horses average about \$150 per horsepower.

One man can easily handle more power in the form of a tractor than its equivalent in horses.

A tractor enables its owner to keep up with his work and do each operation in its proper season, thereby avoiding a common source of loss.

On paper the tractor seems to show up a little better than horses, but in actual practice even those who

own and operate tractors still keep at least one good horse or team—usually brood mares—for light work.

Here are a few jobs typical of the work that horses will probably always do better than tractors:

Mowing rough ground and roadside ditches, plowing the garden, winter work in woodlot, farming hillsides and rough land, operating hay rakes, sweep rakes, tedders, ranch duties as now done by saddle horses.

I suppose that there are at least a hundred jobs of that kind which are too big for human labor and too small for tractors to do economically.

No impartial judge can honestly say which tractor now on the market is best: they are so different.

For a farm full of ditches or where the land is sandy, you naturally want a tractor with large front wheels as well as large rear ones, or possibly the caterpillar type of driving mechanism. There are about a dozen first-class tractors now on the market suitable for the average farm, and perhaps a dozen more—in most cases made by the same companies—for special requirements.

In selecting a tractor the greatest task is to find one that is suited to the kind of work you want it to do. In most cases this will be a machine having from 8 to 12 horsepower on the drawbar and from 16 to 25 on the belt pulley. Do not hastily decide in favor of either a gasoline or kerosene tractor without fully learning the merits of both kinds of fuel.

The demand for a so-called light-weight tractor at first induced some manufacturers to make them too light. But for pulling two 14-inch plows a tractor needs to weigh about 3,000 pounds, and the average weight of tractors for such work is upwards of 4,000 pounds. Too light a tractor is likely to mean weak construction and lack of traction for hard pulling. Several so-called light-weight tractors have disappeared from the market because they didn't work out in the field as well as they did on paper, and their places have been filled by heavier machines of similar design.

So the safest course is to get a medium-sized machine of sufficient weight to give it plenty of traction but provided with a large enough tread to prevent packing. The best method of comparing tractors is to see them at the large demonstrations where they operate on a fair-sized scale, and where the regulations put all on a fair basis for comparison.

Good Lubrication

Keep Oils in Original Containers

By CARLTON FISHER

IN SELECTING a tractor consider whether the bearings are of general size. Remember that a tractor works close to its full power most of the time, and ample bearing surface will mean a minimum of wear. Roller bearings and ball bearings are now coming to be used on high speed tractors and are important means of reducing friction.

Observe tractors that have been run to see whether the crank case leaks. A slight leakage may be expected, but there is no justification in allowing a machine to waste an excessive amount of oil. Fiber gaskets will stop the leakage, but as the crank case is subject to continual vibration, a machine that shows a constant tendency to leak will be hard to keep oiled economically.

Wherever possible, keep oils in the original containers. Oil that is kept in an old molasses barrel or is poured through a dirty funnel is bound to give trouble through no fault of the oil itself.

There are now on the market special oils for tractors. One tractor concern has made exhaustive tests, and recommends any one of eight different oils for general use and a choice of four more for hot weather, when a heavier oil is better.

EW



In selecting a tractor consider the different hitches for mowers, binders, harrows, wagons, and any other machinery you wish to use. The best tractors require no drilling of extra holes

Tractors of To-day

How the 1916 Models Perform at the Demonstrations

By D. S. BURCH

PLOWING 100 acres in 135 minutes was just one of the events to be seen at the St. Louis tractor demonstration held the first part of August. The work was done by 56 tractors pulling 224 plow bottoms.

At the Hutchinson, Kansas, demonstration six women drove tractors in the field, though later women drivers were barred because of the distracting effect they had on the rest of the exhibition.

But back of all such popular attractions stood the stanch worth of the tractors themselves. None of them broke down and, as one visitor remarked to me, "One seems to work just about as well as another." I was surprised to find that changes in external design since last year were so slight. A few makes of machines shown at the 1915 demonstrations were absent, and there were a few new ones. But for the most part the tractors shown were chiefly the same as a year ago. There were no startling surprises, no radical freaks, no whirlwind tractors at bargain prices.

This condition of the tractor business indicates that most of the machines have really become standard. Four-wheeled tractors, three-wheelers, two-wheelers, and the crawling-tread type were all in evidence, with four-wheelers in the majority.

Anyone attending a tractor demonstration hears many arguments as to the "best tractor on the grounds," and is likely to be influenced in his own decision. But back of all the differences of opinion, you always find a difference in the kind of work each man wants his machine to do. For instance, one man went to the St. Louis demonstration to pick out a tractor for roadwork. He was from Illinois. Another from Tennessee expected to use his for cultivating cotton, and still another from Missouri was in the market for twenty tractors to be used on a large estate. Others didn't have such radically different requirements, but there was a wide variance in the price they wanted to pay.

A much better understanding has arisen also as to the size and kind of farm for which tractors are suited. The nature of the soil or the crops raised seems to have little to do with the success of a tractor. The main thing is to have work enough to keep the tractor busy.

"Tractors are not intended for the man with just a horse, a cow, and a pig," said the president of one large tractor company. "He doesn't need a tractor. It is rather for the progressive man operating a real farm, and for whom the methods of the past are too slow and uncertain. The tractor is simply an answer to the demand for tireless farm power, and plenty of it."

A New Motor Construction

BEARING out this opinion is the fact that little progress has been made along the line of low-powered tractors. One machine known as a garden tractor, which has lately appeared, has 1½ horsepower on the drawbar, 4 horsepower on the belt, weighs 450 pounds, has two wheels, and somewhat resembles a huge lawn mower. It sells for \$150, and is intended for a large variety of garden work, such as seeding, mulching, cultivating, but not for plowing. There is also a new motor cultivator which sells for \$400, and has power enough for general farm tillage.

But the greatest interest at the demonstrations was in the tractors that would pull two or three plows, do the seeding, run the ensilage cutter, haul loads on the road, and do other work of about the same difficulty. For such tasks the smallest practical size is the tractor having 3 horsepower on the drawbar and 16 at the belt. This will do the work of a good four-horse team and keep it up long after the horses would be tired out. It will also do all belt work, heavy threshing excepted.

For the person desiring a machine just a trifle larger in capacity but no larger in size, there is a 9-18 tractor which an experienced manufacturer has

just put on the market. This machine has four cylinders, four wheels, a close-fitting hood over the working parts, shaft-driven fan, and is small enough to go in the average horse stall. Altogether it is a sturdy, compact machine, priced at \$800. It performs well in the field.

The 10-20 and the 12-25 sizes were also popular. In the 15-30 tractors and the sizes larger the interest was not as great as in the smaller sizes. While evidence exists that large tractors do their work somewhat more economically than small ones while they are actually working, the smaller amount of capital invested in a small tractor helps to balance things up when the machines are idle. However, the cost of operating tractors even of the same size varies considerably, and is a matter of importance when making a selection.

According to the rules governing this year's demonstrations, each tractor was required to bear a placard giving the drawbar horsepower, belt horsepower, revolutions of crankshaft per minute, plowing speed, size and number of the plows, and the kind of fuel used. About half the tractors used kerosene; the others burned gasoline. Last year the great majority used gasoline. The advantage of kerosene at present prices is the greater economy of operation. But offsetting the economy are a number of disadvantages. A kerosene engine requires gasoline for starting, generally must use water with the kerosene to prevent overheating, and does not give quite as flexible power when changing speeds.

Consequently it is a little more trouble to operate such an engine, though if you are willing to go to the extra trouble you can save some money. One man who had a tractor equipped for burning either kerosene or gasoline came to the St. Louis demonstration chiefly to learn how to burn kerosene successfully.

Another noticeable difference between the demonstrations of 1915 and 1916 was the attitude of visitors toward the construction of the tractors, especially engine construction. A good many came in automobiles, and obviously knew something about high-powered engines. Anyhow, this year there was no "Do hear tell of that!" or "Who'd have thought we'd live to see the day?" Instead I heard questions like this: "How do you get into the crank case? What's the radiation surface? What does a new bushing like this cost?"

"I'd rather sell a man who thoroughly understands machinery," one demonstrator explained, "and who really could make a success of a tractor, than someone else who thinks that a tractor is the way out of all his farm problems. We want to have our tractors succeed, and to succeed they must get into the right hands."

"There is no machine," he went on, "but what will require adjustments and repairs, and will also give some trouble. A tractor purchaser ought to look into the construction so that repairs and adjustments can be easily made at a small cost of time and money. For instance, he must occasionally take up the wear in the connecting rods. But suppose it takes three or four hours to do it. In a busy season he is likely to take a chance and will keep putting it off from day to day, and finally serious trouble may develop that will tie the tractor up for repairs. But if he can make the adjustment in a half hour or so, he'll do it right away and his tractor will always be in first-class condition."

One company had a display of

all parts likely to need replacing, together with the price of each part. These prices ranged from a few cents for a piston ring up to several dollars for connecting rods and crankshafts. An important means of lengthening the life of a tractor is an air filter which takes the dust out of the air previous to its passage through the carburetor. Especially in plowing and harrowing, the air around a tractor is filled with dust. As much as a teacupful of fine dust was collected by an air filter during eight hours' continuous run when the tractor was plowing. This particular kind of filter was of centrifugal construction.

However, it is unreasonable to infer that dust clogs up an engine. Owing to the force with which it is drawn into the cylinders and also to the action of the exhaust, most of the dust simply passes through. But the air filter is a good thing since even a small amount of grit means friction and wear. Likewise, the growing tendency of enclosing the engine with a dust-proof hood appeals to the careful judge of tractors as a means of lengthening the machine's life.

Opinions of Tractor Users

ALL machines have certain advantages and disadvantages which, like a straw vote, make them show up well or poorly on paper. But in a field test the results are altogether different. One of the incidental surprises at one demonstration was the manner in

which a 12-25 tractor hauled a string of three farm wagons. This tractor was of the ordinary round-wheel type, and was not equipped with lugs for gripping the ground. The three wagons were hitched behind the tractor tandem-fashion with a regular tractor hitch which prevented jolting and also acted as a hold-back when going down-hill and across ditches. This outfit was used to haul men from the display grounds to the demonstration fields a mile and a half away. On one trip the wagons held 54

men, which, including the weight of the wagons, made about a five-ton load.

On the roads the pulling was easy, but in the fields the continual passage of tractors and trucks had made the dust from six to ten inches deep. With apparently no solid footing the tractor pulled the load with little difficulty and only an occasional stop to get up fly-wheel speed. Furthermore, in spite of the heavy automobile and tractor traffic, this tractor and its string of wagons made regular trips, giving its half of the road when necessary and not interfering in the least with other machines. It was an excellent informal demonstration of tractor hauling.

Plows for use with tractors are still undergoing development, even though the limit of perfection seemed to have been reached long ago. One new power-lift plow has a hind-wheel lock so that it can be backed, a spring-trip release which does away with breakpins and prevents excessive strain on the plow, quick detachable shares, and high clearance. It is also adjustable for two or three bottoms, and by a frame adjustment each bottom can be made to cut 12, 14, or 16 inches, as desired.

The question suggested by any new implement is, "Will it stand up under service?" One farmer said to me: "I've had my tractor outfit four years and it stands up as well as I could hope for. I think any standard make of tractor will stand up if you treat it right, and machines are now made better than ever before."

Another said: "If you give a tractor a tenth of the time and consideration you give a team of horses, it will give good service. We have one in our neighborhood that has been used the last six years for working the roads. We have a good mechanic to run it, and the machine itself is simple, so there isn't much to get out of order."

One of the most thoughtful opinions on tractors I have ever heard was given as follows: "A tractor will do certain jobs better than horses, others just about as well as horses, and still others not so well as horses could do them. I have found that tractors are best for the hard heavy work, especially plowing and harvesting. These are the two hardest jobs on our farm. The tractor works well on the binder because it is steady. I can give nearly my whole attention to the binder and always cut the full swath. It's a relief to be free from the lines and the whip."

"For belt work the tractor is good too. One day last week I baled 218 bales of hay with tractor power. At first automobiles were far from perfect, but they sold for cash and the buyer was financially able to make them work. If he had trouble and couldn't fix it himself, he hired someone that knew how. So he kept his automobile running, and by the service it gave he soon found he couldn't get along without it. It will never do to sell tractors on time. A tractor is for the man with enough capital to keep it in first-class working condition. For such a man it is a profitable investment, and he will never go back to the old slow method of farming with horses."

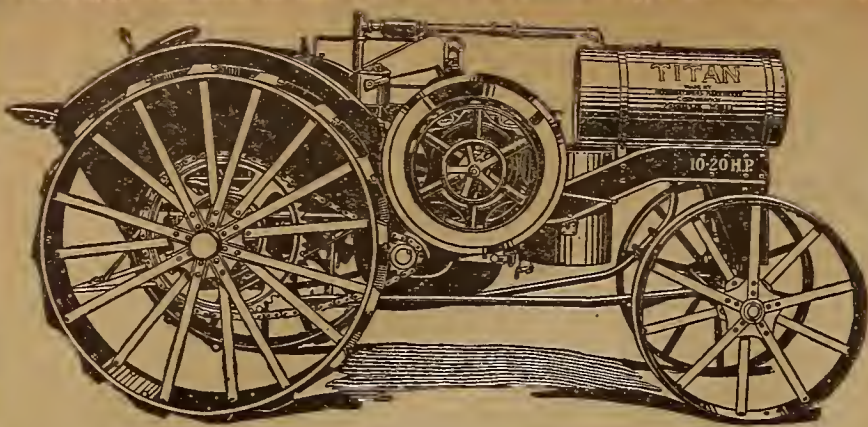
EDITOR'S NOTE: Questions and comments on tractors are invited. If you have a tractor or are thinking of getting one, or if you wish further information about any tractor mentioned in this issue, your questions will be answered promptly and free of charge. Address the Machinery Editor, FARM AND FIRESIDE, Springfield, Ohio.



This two-wheeled machine is heavy enough to pull two plows, and is also suitable for cultivating



Here is one of several tractors that have adopted a close-fitting hood to keep dust and grit out of the engine. Also note the low-down construction



\$900 Cash
f. o. b.
Chicago

Titan 10-20

\$900 Cash
f. o. b.
Chicago

The New International Harvester Kerosene Tractor

Latest in Design—Backed by Over Ten
Years' Experience in Tractor Building

AFTER years of searching tests, the new Titan 10-20 takes its place in the regular line-up of International Harvester Kerosene Tractors.

Here are a few of the features you want to know about:

It develops full 20 mechanical H. P. in the belt—10 at the drawbar.

It works on kerosene—common coal oil—a fuel saving of about \$200 on an average year's work, over gasoline at present prices.

It has a smooth running twin-cylinder engine, 6½" bore and 8" stroke.

Entire crank case enclosed—no dust or grit can get to engine. Shields over drive wheels help to keep out dirt.

No batteries needed—start and run on magneto.

Automatic oiling—keep the oil tank full and the engine does the rest.

Two forward speeds. 1.85 and 2.50 miles per hour—and one reverse.

Powerful, flexible chain drive to each rear wheel.

Turns in 28-foot circle. Handles like an automobile.

Powerful brakes on both rear wheels.

Length 147", width 60", height 66¾". Approximate shipping weight, 5,225 lbs.

Titan 10-20 is now ready for delivery in limited quantities. Orders will be filled in turn as received. Now is the time to get posted. Write for complete information about the full line of tractors, from 8-16 to 30-60-H. P. sizes.



International Harvester Company of America

(Incorporated)

CHICAGO

USA



Wanted 30,000 Men For Harvest Work on Immense Crops of Western Canada

**Wages \$3.00 Per Day and Board
Cheap Railway Rates From Boundary Points**

Employment bureaus at Winnipeg, Regina, North Portal, Saskatoon, Ft. Frances, Kings Gate, B. C.; Coutts, Calgary, Alberta.

No Conscription—Absolutely No Military Interference

For all particulars apply to the following Canadian Government Agents.

M. V. McINNES, 178 Jefferson Ave., Detroit, Mich.
W. S. NETHERY, Interurban Bldg., Columbus, Ohio

FREE —Postpaid This Big Sample Box of My Famous Healing Ointment



I want you to see for yourself

what a wonderful healing preparation

CORONA WOOL FAT COMPOUND is.

I want to prove to you on your own horses

and cows and WITHOUT A CENT OF

COST, how quickly it will heal and cure

Split Hoofs, Barbed Wire Cuts, Grease

Heel, Galled Shoulders, Hard and Con-

tracted Feet, Mud Fever, Corns, Scratches, Thrush, Quarter

Cracks, Boils, Ulcers, Old Sores, Caked Udders and Sore and

Inflamed Teats on cows.

CORONA WOOL FAT

The Wonderful Healing Compound

is unlike anything you ever tried or used. Don't confuse it with salves which contain grease and blister compounds. This remedy will penetrate the hoof of a horse which is 60% to 70% water. It is not a grease but the fatty secretions extracted from the skin and wool of the sheep. It is readily absorbed by skin and hoof, penetrates to the inflamed inner tissues and

Heals Without Leaving a Scar

CORONA does not burn or blister, grows hair over cuts and sores, causes no pain, soothes and heals surprisingly quick. The free sample will prove my claim. A postal brings it postpaid, and I'll also send you my free book "HOW TO TREAT HOOF, WOUNDS, SORES, etc." Send for both today. Give name of your Blacksmith and Harness Dealer.

C. G. PHILLIPS, Mgr. THE CORONA MFG. CO., 25 Corona Block, KENTON, O.



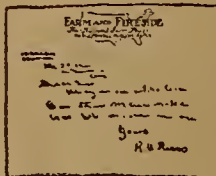
C. G. PHILLIPS
The Wool Fat Man

How To
Treat
Hoof's
Wounds
Sores etc.

(23)

The Editor's Letter

A Man Asks What He Shall Do with \$10,000



AN EDITOR'S mail is packed full of surprises. One of these surprises just received is a letter from a man who wants to know what he shall do with ten thousand dollars. Would I consider a farm a good investment for him, and what kind of farm and what location would probably insure his success, he also asks.

The surprise with this particular request is the fact that he has the coin ready in his hand for the purchase of a fairly good little farm. As a rule, the hundreds of similar requests ask for counsel as to how farms can be bought without capital or with a little nest egg of a few hundred or a thousand dollars or so. This ten-thousand-dollar man's letter was a distinct relief, as well as a surprise. An editor gets a bit weary sometimes, trying to figure out just how five hundred dollars, or one thousand dollars, can be made to take the place of four thousand, five thousand, or ten thousand dollars for the buying and equipping of a farm. Particularly is this the case when the candidate for the farm shows by his letter that he has but few qualifications for succeeding in a farm business, yet makes the fact plain that he has decided to have a go at the farming game whatever befalls. As a rule, persons knowing the least about actual farm work and farm management have the fullest assurance of their ability to buy a farm, largely on credit, and win out by means of exceptionally wise farm management.

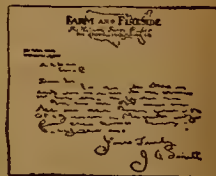
In all cases where capital is insufficient and the candidate is inexperienced, my first and strongest recommendation is always for the land-hungry man or family to get a chance to work for a successful practical farmer for one year before investing his precious savings in part payment of a farm. If I can induce such farm-hungry, inexperienced persons to try out the farming business for a year, helping to do all kinds of work under the guidance of a good farmer, my conscience is at rest in the matter. Any normal person will seldom go seriously wrong in investing his savings in a farm after he has knocked up against the angles of farm life throughout the working hours of 365 days.

My advice to this particular possessor of ten thousand dollars did not differ greatly from counsel given to other inexperienced candidates with a tenth of his capital. He needs the first-hand contact with all phases of farm life, farm work, farm planning, crop culture, crop harvesting, animal husbandry, marketing, soil improvement and plant-food conservation, just as surely as does the man with little or no capital. It is about as easy to fail with ten thousand dollars as with one thousand invested in a farm proposition if the plunge is taken with unpreparedness.

This ten-thousand-dollar candidate for a farm has had a smattering of farm experience in his boyhood, but has worked for about a dozen years at different kinds of shop work, and at the age of thirty has hardly been out of his home county in an Eastern State. I advised him to spend several hundred dollars in seeing something of the country before locating definitely. Then after getting this wider view of farm life he can give that life a trial as a farm hand in the locality which most appeals to him.

It goes without saying that this forehanded would-be farmer does not want to become a prey to designing farm-land boomers. He therefore requested that his identity should be kept from becoming public.

WHY did it take employers of labor so long to learn that an equitable division of profits or a "labor dividend" is not only justice but an excellent business policy as well? All over this big country the practice of paying a labor dividend is now coming into use or receiving very thoughtful attention. Hundreds of factories, including many manufacturers of metal, wood, leather, cement, etc., at the close of a successful business year now set aside a portion of the net profits to be used as a labor dividend. Mercantile houses are similarly falling into line.



When a good, faithful employee whose regular wage is, say, \$500 or \$1,000 a year gets a lump sum of \$50 to \$100 as

a 10 per cent labor dividend when the year's business is settled, the influence on the receiver is a tremendous incentive to make his muscles and mind count for even better work and business progress for the year following.

I have just learned that at least one specialized farm business has now adopted the labor-dividend idea—the Henry Field Seed Company declared a 10 per cent labor dividend at the end of its last business year, which affected 107 wage earners. That means 30,000 more effective days' work for this company, should all the hands work steadily for the year. What a power for betterment can be expected from efforts thus spurred on towards a better year's accomplishment!

This principle of the division of profits is merely a development of the plan of share-renting of farms. The more energy, brain force, and good management going into share-farming operations, the better labor income will the tenant receive, the larger profit will the owner make in proportion. There is also a chance for introducing the labor-dividend policy where wage farmhands are employed. Almost any farmhand can make his services worth what would be comparable to a 10 per cent dividend on the amount of his wages if he can have such a stimulus held out to him at the beginning of the year. Such an addition to his wage is "clear velvet," and a good farmhand receiving such recognition of superior service will be pretty sure to stand by the farm ship for another year, or longer.

THESE days we hear a lot about harnessing the lightning and putting this tremendous electrical force to work for man's benefit. Just the same, there is still plenty of unharnessed lightning still on the rampage making trouble and loss. Last week I was in a Chautauque County, New York, community where an entire herd of ten valuable dairy cows owned by G. H. Weiss was destroyed in an instant by a discharge of lightning which made ground connections by way of a tree under which the animals had sought shelter from a heavy storm. The cows did not come to the stable at milking time, according to their custom. A little later the lifeless cows were found under and near the tree which had been shattered by the bolt.

The following day found me in Warren County, Pennsylvania, where Mr. J. E. Norris, the secretary of a local mutual insurance company described for my benefit how another animal casualty due to lightning occurred. In this case the dairy cows owned by Mr. Manley Frank were stabled when a lightning discharge struck the building and instantly killed five cows. A peculiar freak of this killing was that each alternate animal across the stable escaped harm. The cow nearest the stable door was killed, the one next in line escaped, thus alternating throughout the string. The officer of the insurance company told me that his company had just paid \$65 per head for the five cows destroyed.

The records of the insurance company, Mr. Norris informed me, show that out of the 700 and over losses due to lightning settled for by his company, not one building had been rodded as a protection against lightning. This overwhelming official evidence as to the protection afforded by lightning rods leads me to believe that no owner of valuable horses and cattle can afford to leave isolated trees or clumps of trees in pastures where his stock runs. Why should not companies insuring stock make a lower rate where pastures as well as stables are provided with storm and shade protective shelters for stock properly rodded, and where lightning-attracting trees are removed or enclosed to prevent stock from seeking the danger zone beneath and around them?

The Editor

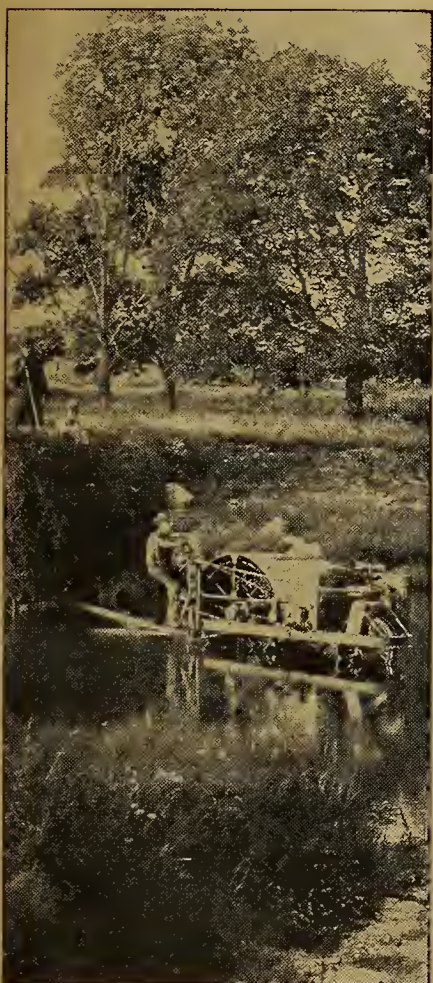


WHEAT harvest calls for power that will work long hours in hot weather. A tractor is ideal for such work, but it must be dependable. Buying a tractor in the fall is an excellent plan. The user learns to run it during fall and winter, when work is intermittent and not so important. By spring he is thoroughly familiar with the machine and is competent to use it for large operations.



LOADING hay is one farm operation where the man on the load appreciates steady power. A nervous team that pulls in jerks has caused many a fall from a load to the ground. As the draft of a hay wagon with loader attached is not particularly heavy, a tractor can generally run in high gear, thus doing as much work as a first-class team of horses, and more if the weather is hot.

Varied Work That Tractors Will Do

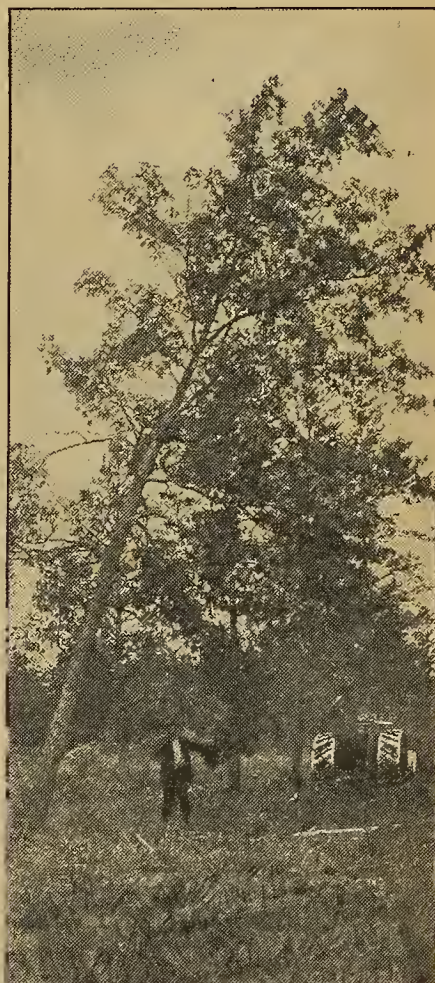


PULLING a load of hay across a creek is one way of convincing skeptics that a good tractor will go about anywhere a horse will. And did you ever consider that, while the radiator needs occasional replenishment, a tractor doesn't stick its nose in the watering trough up to its eyes while you pump till the well goes dry?



THIS picture shows how easily a tractor can turn a corner in plowing without stopping. It doesn't have to rest, nor does it get sore shoulders, nor run away if an angry swarm of bees resents the intrusion of a plow. And one man can control a greater amount of horsepower in the form of a tractor than its equivalent in horses or mules.

THE owner of this tractor uses it to pull down trees, to haul them to his circular saw, and later, when the trunks have been trimmed and cut to desired lengths, the tractor saws them into stove wood. This size (eight horsepower on the drawbar) can pull down a good-sized tree if the hitch is made high on the trunk.



HORSES frequently have to learn to do different kinds of work before they are steady and reliable. But a tractor is concentrated power without any notions of its own. It won't scare, it doesn't mind strange sounds behind it, and for odd jobs, like pulling a thousand-pound piece of a tree, it takes hold the moment you open the throttle. Furthermore, it pulls steadily and doesn't see-saw like a team that thinks itself overloaded.

WHILE experts differ in their preferences for different tractors, they agree in the importance of expert local service for making adjustments and repairs. During the harvest season, when delays are costly, the men in the picture have the satisfaction of knowing that a reliable company and its representatives stand back of the machine. Avoid the untried machine that may prove to be an orphan on your hands should the maker go out of business.



FARM and FIRESIDE

THE NATIONAL FARM PAPER

Published Twice a Month by
The Crowell Publishing Company
Springfield, Ohio

Branch Offices: 381 Fourth Avenue, New York City;
Tribune Building, Chicago.

Entered at the Post-Office at Springfield, Ohio, as Second-Class Mail Matter.

Subscription Price

One year (24 numbers), fifty cents. Three years, one dollar. Extra postage for Canada, twenty-five cents a year.

About Advertising

Farm and Fireside guarantees that its advertisers are responsible and honest people, and that its subscribers will receive fair and square treatment.

Advertising rates and regulations furnished upon request.

September 2, 1916

The Farm Loan Act

THE passage of the Farm Loan Act is the last step in the long, hard, and intelligent fight which some few eminent men with real knowledge of agriculture and of the requirements of the farming business have been making for many years.

And this final enactment of the bill, which our Washington correspondent has so well described in his Washington letter, is just the beginning of a long series of trials and tests, of changes and of modifications, which will undoubtedly have to be made before the operation of the loan system is smooth and effective.

The bill has been admirably conceived and drafted, the board chosen to put it into effect is made up of experienced and able men. But we must remember that it is new work, pioneering in its way, and that time, and time only, will show results. Meanwhile, let us be patient and, when we can, helpful.

A New Source of Potash

ENORMOUS growth in the cement industry, which has been developed to meet the demand for building material, now promises to solve another important economic problem—that of our potash supply independent of Germany.

In the manufacture of cement there is expelled into the atmosphere tons of dust from the smelters which with the fumes is carried by the wind and settles in a destructive sediment on all vegetation, buildings, and objects in the neighborhood of the smelters. Now an invention made by Dr. F. G. Cottrell, of the United States Bureau of Mines, precipitates the dust from the smelters and enables the saving of the potash contained in it.

Last year one large California cement company that had formerly been compelled to pay heavy damages for the dust distributed from its plant secured \$80,000 net profit from the potash recovered by the new process. It is now believed that cement plants at present operating in this country can secure a by-product of 100,000 tons of potash that has heretofore been worse than wasted, and that, as the cement industry enlarges, the greater part of America's potash supply can be secured from this source and at the same time reduce the cost of cement manufacture.

Educational Day Parade

THE editor recently saw an Educational Day parade in a county-seat town in Maryland where the population is about 1,500. There were nearly 5,000 children in the procession.

The county has about 35,000 people, and the entire county school system was represented. The children and their parents came from every part, almost as many parents as children. Exhibitions of educational work—academic, manual, agricultural—were studied with the greatest interest. Some hundreds of badges, diplomas, and medals were awarded. There was a Shakespearean pageant by the pupils of one high school

in the preparation for which the entire school had gained a remarkably accurate knowledge of several Shakespearean classics.

If there could be a county Educational Day celebration in every county once a year, it would be one of the biggest things this country could establish. Try it in your county. You will be astonished to learn how popular it will be—and how much easier it will be thereafter to get school taxes voted.

Honeybee an Economist

THE ant takes rank over the honeybee in Scriptural commendation as a hustler, but the modern specialized bee directs his activity into commercial channels in a way that leaves the ant way behind. Prof. M. B. Waite, Uncle Sam's bee chief, covered 2,586 apple flowers with gauze netting before they unfolded, and secured only three apples from the experiment. Other apple blossoms, on which bees worked unhindered, set a normal quantity of fruit.

Another case in which the bee gave a positive instead of a negative demonstration of his pollinizing efficiency was in a Nebraska cherry orchard this season. An apiarist got his bees into action in a cherry orchard of 300 trees for two days just at the critical period when pollinization must take place. He secured a crop of 300 bushels. Neighboring cherry growers out of range of the bees secured no cherry crop, although the bloom was equally abundant.

A Tale of the Airly Days

By James Whitcomb Riley

OH! TELL me a tale of the airly days—
Of the times as they ust to be;
"Piller of Fier" and "Shakespeare's Plays"
Is a'most too deep for me!
I want plane facts, and I want plane words,
Of the good old-fashioned ways,
When speech run free as the song of birds
Way back in the airly days.

Tell me a tale of the timber lands—
Of the old-time pioneers;
Somepin' a pore man understands
With his feelin's 's well as ears.
Tell of the old log house,—about
The loft and the puncheon floor—
The old fire-place with the crane swung out,
And the latchstring through the door.

Tell of the things jest as they was—
They don't need no excuse!—
Don't tech 'em up like the poets does
Tel theyr all too fine fer use!—
Say they was 'leven in the fambly—
Two beds and the chist, below,
And the trundle beds that each helt three,
And the clock and the old bureau.

Then blow the horn at the old back door
Tel the echoes all halloo,
And the children gethers home onc't more,
Jest as they ust to do:
Blow fer Pop tel he hears and comes,
With Tomps and Elias, too,
Amarchin' home with fife and drums
And the old Red White and Blue!

Blow and blow tel the sound draps low
As the moan of the whipperrill,
And wake up Mother, and Ruth and Jo,
All sleepin' at Bethel Hill:
Blow and call tel the faces all
Shine out in the back-log's blaze,
And the shadders dance on the old hewed wall
As they did in the airly days.

(By permission of the Bobbs-Merrill Company)

A Delaware Poultryman

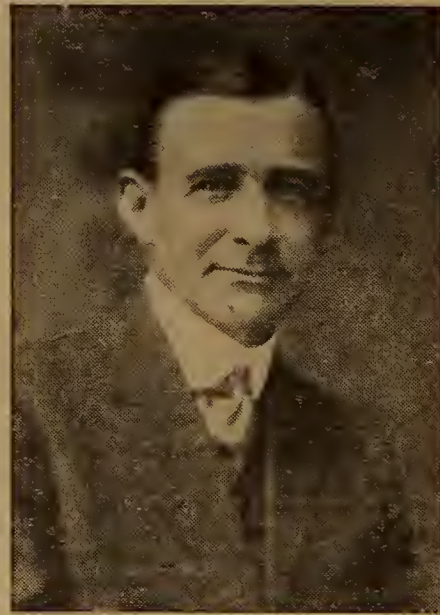
CREDIT for inaugurating the First American Egg-laying Contest belongs to Dr. F. V. L. Turner of the Philadelphia "North American." This first contest was conducted at the Connecticut Experiment Station under the joint management of the "North American" and the Connecticut College of Agriculture.

A. M. Pollard, whose picture accompanies this sketch, had direct superintendence of the First and Second Connecticut contests, the Third North American Contest at Thorndale, Pennsylvania, and the Fourth and Fifth contests conducted jointly by the "North American" and the Delaware College of Agriculture. In each of these contests five hens constituted a pen.

Heavier average egg production has been secured in these contests than in the other American contests. The reason for this higher egg yield has not been made clear. Whether it is due to Mr. Pollard's superior skill in caring for the birds or the result of an intestinal

cleanser compounded and used for conditioning the hens in the "North American" contests, is an interesting question.

Mr. Pollard says that after fifteen years of poultry investigative work he feels absolutely sure that there is no such thing as one ration for Leghorns



and another for the heavier breeds, and that there should not be any change in the feeding ration from winter to summer.

A well-balanced ration of six or seven different kinds of grain always kept the same will fit light or heavy breeds. If the Rocks, Wyandottes, or Leghorns want a variation, the different grains will furnish it. It has been demonstrated that a hen knows better than man what she needs for heavy egg production. What is true of scratch grains is true of dry mash. Our contest mash contains eight grains besides the animal food element.

Our Letter Box

"Give the Dog a Chance"

DEAR EDITOR: Just a line to say, "Give the dog a chance." We have been raising lambs and dogs together for four years, and we find when the two are brought up together the lambs are not afraid of a dog's bark and will not run from a dog, but will turn around to see what ails the dog, and sometimes chase the dog out of the lot. We bought a lamb last October that had not been brought up with a dog and would run like a deer, but when he found the dog was harmless he stopped running. I would advise to get a collie and raise him with the sheep.

MAY FULLER, Massachusetts.

Thinks Welliver Hasty

DEAR EDITOR: I think Mr. Judson C. Welliver a little hasty and unjust in his criticism of our Government in its dealing with that importation of horses. He should recall that old fable of the camel's getting his nose into the tent.

If the Government had been slack in dealing with this one case, it would have been the entering wedge, and soon other importers would have demanded similar leniency. The London breeder could easily have found out in advance if there was a demand, and sold them before shipping, thus saving everyone concerned trouble, hard feeling, and money. I think we should be loyal to our Government and not criticize thoughtlessly.

E. C. ERVIN, Washington.

Two Big Factors

DEAR EDITOR: The Editor's Letter in FARM AND FIRESIDE of June 17, 1916, instills in me the desire to tell of our rural school and some of the things the teacher and pupils have accomplished with the aid of their parents.

Our school numbers more than forty pupils, evenly divided as to boys and girls; every grade is represented. It is double the size of any other two schools in the township, and we know of none in the county larger.

The teacher, a young man, has his hands full with so many youngsters, but he seems to have a way all his own of getting them interested in their work. His eighth-grade pupils passed their examinations with high grades. The school has had several entertainments during the two years of his work. The entertainments have been a penny social, a corn day, with a fine display of various kinds of corn and with prizes for the best and second best six ears of

corn, Thanksgiving Day exercises and pie social, spelling bee, and a play given by the teacher and the boys of the school. He had formed a club among the boys, and they held their meetings every Friday night. Some of the money taken in from these entertainments was used to purchase a library for the school on various topics, such as agriculture, fruit-growing, cooking, famous men, country life, nature studies, great musicians, etc.

Side lamps and a clock for the school-room have been purchased, and some of the money was used for decorations and presents at Christmas time. The pupils have studied the state bulletins on various topics in connection with their studies, and they have had a class in sewing. While the girls were sewing, the boys were judging cattle, pruning and grafting trees.

I have not spoken of our county agent, but we have one. Not the same man we had last year (he has a higher position), but a young man filled with enthusiasm in regard to his work. He has given one talk at the schoolhouse, one demonstration on treating potatoes for scab, and attended two Grange meetings in our township. The county agent and the rural-school teacher are two important factors in the development of our community.

MRS. R. M. STAFFORD, Ohio.

Employ Settlers' Agent

DEAR EDITOR: There are plenty of advisers these days for the farmer who wants scientific information, but there has never been a real helping hand held out to the fellow who went into a new agricultural country and had to start at the beginning. What such a fellow wants is a hand at getting up some temporary buildings to house himself and family, a cheering word from his neighbors, and a little assistance in buying stock, supplies, etc., at a fair price, instead of having to submit to hold-up prices due to a lack of knowledge of where to buy.

Marinette County, Wisconsin, has just put to work a man whose office title is Settlers' Agent. His sole duties are to help new settlers over the rough spots in locating in a new agricultural community. The new official, S. E. Bennett by name, was himself a new settler a few years ago, and he is also an experienced farmer. He will meet new settlers when they arrive; be ready to help them to unload their goods; will have neighborhoods organized to welcome the new arrivals; will organize "bees" for the raising of barns, houses and other buildings among the new settlers; will push the organization of farmers' clubs among the settlers; keep lists of the good live stock for sale cheap, with the purpose of helping the settlers to be successful; and a hundred and one more things which do not fall within the lines of scientific agriculture but which are very necessary in new agricultural communities.

This is a new experiment in Marinette County, and so far as known it is the first experiment of its kind in this country. Its initiation is due to progressive bankers, merchants and other business people of the county who have come to realize that they will be successful largely in proportion as the farmers are successful. They are paying the salary and expenses of the Settlers' Agent, and already they are well satisfied that it is one of the best steps any community can take which has large areas of farm lands to be settled as is the case in Marinette County.

HOWARD I. WOOD, Wisconsin.

More About the Hired Man

DEAR EDITOR: I have read with both interest and amusement the two articles regarding the hired man. I think K. M. R. of Illinois hit the nail on the head in her article about the hired man only I believe I could tell a little worse experience. Many farmers here expect to hire a man (married preferred) for about \$25 a month, the highest ever paid is \$32. The hired man has a half-day's work of chores to do after he comes out of the field. His employer expects him to take a corner in a sod field of clay ground for a truck patch. Then the employer's cows and horses run all over it and destroy what little the hired man might raise. If the hired man suggests keeping a few chickens—"Oh, no!" They happen to have some of just that color and they might get mixed. Often a hired man can't ever have Sunday to enjoy, as he must get back to do the chores.

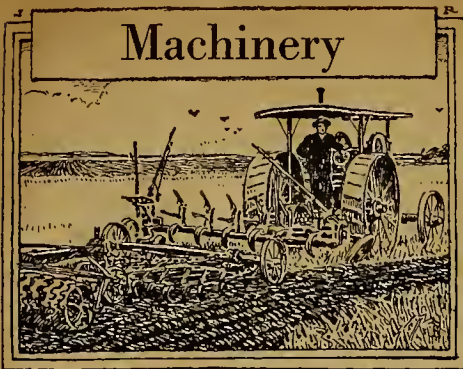
MRS. B. H. SHAGLE, Nebraska.

Likes Well-Printed Pictures

DEAR EDITOR: I not only like the interesting and helpful articles in FARM AND FIRESIDE, but I also enjoy the fine, well-printed pictures used in the paper.

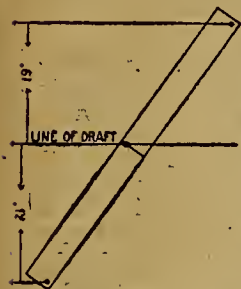
WALTER FAIRALL, Iowa.

Machinery



Evener Question Again

By B. D. Stockwell



IF a team pulls unevenly, does the horse ahead or the horse behind pull the greater amount of the load? This question has been raised again by several readers, and as they refer to a Minnesota news item credited to the Minnesota

Agricultural College, we here present the facts from headquarters. Prof. A. L. Ewing of that institution says:

"We demonstrate to our classes in physics that with one type of evener, a type in common use, with clevis pins on a line back of the draft pin, the horse that is ahead has the advantage.

"We use for this purpose the evener itself or, for convenience, a pattern made of a one-half inch board of the exact dimensions of an evener.

"The board is suspended from the draft-pin hole, where it balances horizontally. Equal weights are now suspended from the clevis-pin holes, when it is found to balance so long as the evener is horizontal, showing that it is an equalizer if the horses are together. It will not, however, balance in an oblique position, but requires a considerable added weight at upper end to hold it in any particular position, representing one horse ahead of the other, thus demonstrating that the horse that is behind pulls more than his half of the load.

"The principle involved is shown by the sketch, showing that the effectual lever arm of the hind horse becomes shorter than that of the head horse as he is brought near the line of draft.

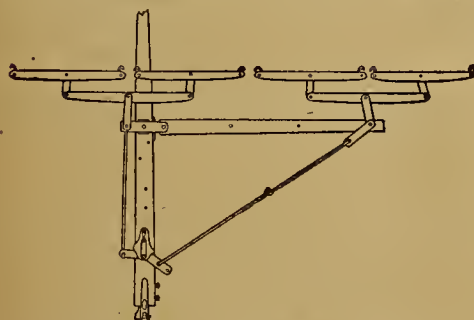
"It would, however, be a mistake to assume that the head horse always and necessarily has the advantage, as with one type of evener he actually pulls the most, and with a third type there is no difference in the draft of the two horses, even though one is ahead.

"Evensers can be so made that each horse is pulling its share of the load regardless of the position of one being ahead of the other."

Use a Tongue Truck

A MISSOURI subscriber asks for a sketch of a four-horse evener to be used on a binder so that one horse walks on one side of the tongue and the other three on the other. The evener must be constructed so there will be no side draft.

Unless a tongue truck is used it is impossible to eliminate all side draft. A tongue truck will carry the side draft and also eliminate neck weight. The sketch shows one method of constructing a four-horse evener that enables the horses to work on a binder in the manner specified. Such an evener is obviously rather complex, and is hardly to be attempted in a home-made way.



Cost of Machine Work

AMERICAN farm implements are pointed out to the world as labor-saving machinery. And various claims are made as to the cheapness of machine work compared with hand labor. The Government has lately made a special study of machinery costs on farms in western New York, and here are the principal things found out. Some machines are used more days in the year than others, so the best means of comparison is to list them according to their cost for going over an acre of ground. The figures include repairs and interest

during the lifetime of machine, and are given in round numbers, fractions of a cent being dropped:

Implement	Cost an Acre of Work
Spike-tooth harrow	3c
Spring-tooth harrow	4
Land roller	4
One-row cultivator	6
Hay rake	7
Walking plow	10
Disk harrow	10
Two-row cultivator	12
Grain drill	17
Hay tedder	18
Mower	21
Bean harvester	22
Sulky plow	29
Grain binder	40
Cabbage transplanter	49
One-row corn planter	53
Two-row corn planter	80
Corn binder	84

These figures are low enough to justify all claims as to labor-saving, and when we consider the time saved the showing is on the whole favorable. The average walking plow is used more than eighteen days a year, and lasts twelve years, making it the most serviceable of all farm implements.

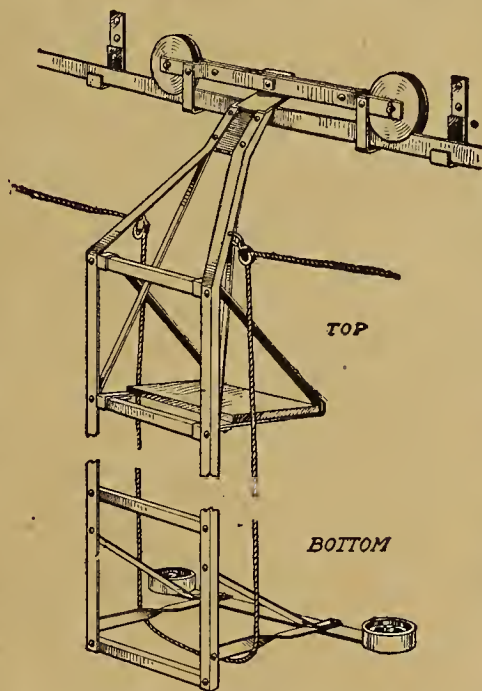
Best Engine Load

IN a test made with farm gas engines of 1½, 6, and 10 horsepower, power was developed most economically when the engines were running at two thirds their maximum load. This does not mean that the engines were overrated, since they carried their full loads without distress.

But as far as the economy of fuel was concerned a third less than the full load gave best results. That is, if you give a six-horsepower engine a four-horsepower job, it will do the work cheaper per horsepower than if run at full capacity.

Movable Ladder for Silo

A LADDER that hangs on a track encircling the silo just under the eaves is a new safety device that will be appreciated by the man who must look after his hoops every few months.



By means of this ladder you can ride around the outside of your silo simply by pulling a draw line provided for that purpose.

It is also handy for painting and general repairs. The idea seems to be an ingenious improvement over the light ladders used in shoe stores for getting stock from the top shelves, only in this case the track is circular instead of straight.

Sources of Farm Power

PHILIP F. ROSE, a Wisconsin machinery expert, proves that more power is used on the farm than in manufacturing enterprises. Counting horses, mules, windmills, tractors, and gas engines, the total power developed on farms amounts to twenty-four million horsepower. Manufacturing enterprises use about eighteen and three-quarters million horsepower. Horsepower on the farm is derived from the following sources:

Kind of Power	Number
Horses and mules	25,400,000
Windmills	750,000
Steam tractors	100,000
Gas tractors	20,000
Gas engines	1,000,000

Of the 24,000,000 total horsepower, horses and mules develop over 14,000,000, and gas engines are second with 5,000,000.

Electric motors seem to have been left out of consideration entirely. They would swell the total figure somewhat. The gas-tractor figures are doubtless much higher now than when this investigation was made, early in 1915.



BLIND MILTON DICTATING TO HIS DAUGHTER
From the original by Mun'acy, in New York Public Library



The Vision of the Blind

"Thousands at his bidding speed,

And post o'er land and ocean without rest;

They also serve who only stand and wait."

Was the spirit of prophecy upon John Milton when, more than two hundred and fifty years ago, he dictated those words to his daughter?

Did the "blind poet" have a vision of the millions of telephone messages speeding instantly over hundreds and thousands of miles of wire spanning the continent?

"They also serve who only

stand and wait." The Bell Telephone is your servant even while it "only stands and waits." The whole system is always prepared and ready for your instant command.

Every wire and switchboard and telephone instrument is kept alive and responsive by an army of telephone workers.

Each one has his special part to do and, because he does it faithfully, countless messages speed throughout the length and breadth of the land, at every minute of the day and night.

AMERICAN TELEPHONE AND TELEGRAPH COMPANY
AND ASSOCIATED COMPANIES
One Policy One System Universal Service

GET MY 1916 BUGGY BOOK FREE
The greatest vehicle catalog ever printed—a postal brings it—postpaid.

SPLIT HICKORY
Famous for beauty, comfort and quality. Nearly a quarter of a million now in use. My new catalog tells how I have split the price—now only \$39.25 and up. 150 styles to choose from. Write today. H.C. Phelps, Pres. THE OHIO CARRIAGE MFG. CO. Station 42, Columbus, Ohio. I Give 30 Days Free Road Test—Two Years Guarantee.

ASK our sales office nearest you for prices and terms on fertilizers adapted to your soil and crops.

Send for Booklet—Free
The American Agricultural Chemical Co.
New York, Baltimore, Philadelphia, Buffalo, Cincinnati, Cleveland, Detroit, Boston, etc.

"Spruce Up" The Home for Winter
You spend the winter indoors. Beautiful, harmonious surroundings mean winter cheer. Before cold weather, go through your home and "spruce up" the furniture and woodwork. It's easy and a pleasure with

Lucas Paints
Purposefully Made for Every Purpose
Start with two of your chairs that are battered and marred. 20c worth of Lucas Home Helps Varnish-Stain will make them as beautiful as when you first went to housekeeping. There are 16 shades—Light Oak, Dark Oak, Mahogany, Rosewood, Walnut, etc. Use Lucas Home Helps Floor Stain Finish, Enamels, Prepared Paint. Ask your dealer for Lucas Home Helps. If he does not sell Lucas Home Helps Varnish-Stain, send us his name and 20c and we will see that you are supplied with enough to re-finish two chairs.

The Giant Painter
John Lucas & Co., Inc.
Office 96 Philadelphia, Pa.

TRY TEN DAYS FREE
SAVE \$20 SHOE MONEY

Ruthstein's LATEST TRIUMPH NEW MODEL 1917 "STEELS"

The only Practical, Comfortable, Light, Long-Wearing, Absolutely Waterproof GENERAL SERVICE SHOE for Men and Boys.

One Pair Outlasts 3 to 6 Pairs ALL-Leathers. Here's the Best and Only "Year-round," "all-purpose" Shoe ever invented. Warm in winter—Cool in summer—Always dry and shapely. Made in all sizes and heights—for Men, sizes 5 to 12; 6, 9, 12 and 16 inches high; for Boys, sizes 1 to 4. For Farmers, Mechanics, Dairy, Creamery and Stock Men, Laborers, Fruit and Vegetable Growers, Sportsmen. The World's Greatest Work Shoe—Play Shoe—School Shoe.

SAVE YOUR HEALTH AND MONEY

SAVE BIG DOCTOR'S BILLS SAVE BIG SHOE BILLS

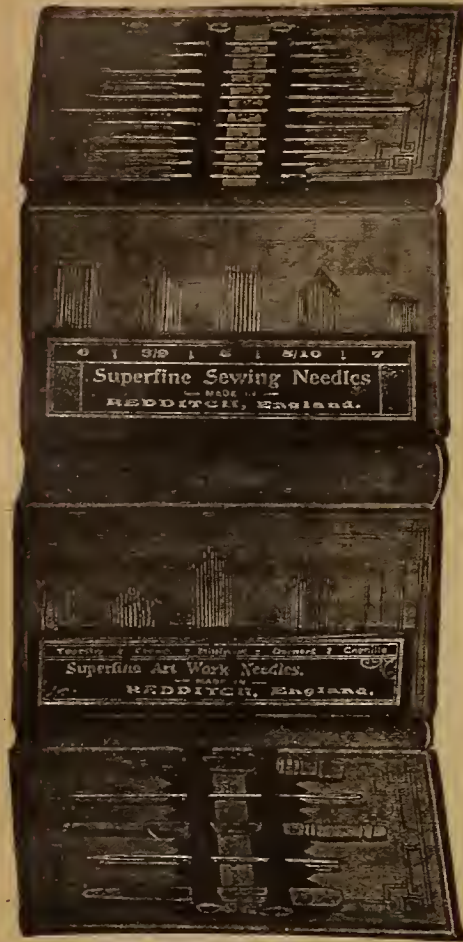
Prevent wet, tired, blistered, calloused, chafed, aching feet. No more hard, cracked, warped, twisted, leaky shoes. These evils cause Rheumatism, Lumbago, Sciatica, Coughs, Colds, and cause loss of time and health. Always Comfortable—Always Dry. Saves \$10 to \$20 shoe money.

STEEL SHOE BOOK—FREE

"The Sole of Steel" illustrates and describes this wonderful money-saving Shoe with Long-wearing, Adjustable Steel Rivets instantly replaced when worn for a few cents. The shoe of light, springy step—the shoe that makes you sure-footed and tireless—the shoe that Protects Your Health—Your Comfort—Your Purse. It tells how YOU—or anyone—can TRY MY "STEELS" TEN DAYS, FREE. Address your postal to

N. M. RUTHSTEIN
The Steel Shoe Man, Department 321, Racine, Wis.

We Have Just Received A NEW LOT OF "Dandy" Sewing Outfits



Showing Book Opened, Size 13 3/4 x 5 Inches

This is the most popular women's premium we have ever offered. Thousands of our women readers have already secured their sets. Get *yours* now while our supply lasts.

This Set consists of 142 useful sewing articles. Packed in a neat folding leatherette case. It closes up like a book.

This outfit has a tremendous appeal to women, because it contains everything they need for their sewing baskets. Look the illustration over and note the great variety of sizes and kinds of needles and other necessities for sewing, darning, embroidering, etc. The whole outfit is made of the very best materials obtainable. Every article contained in the "Dandy" outfit is guaranteed to give satisfaction.

We have only been able to secure a small stock of these outfits, as some of the articles are imported. Better get your order in early and avoid disappointment.

A NEEDLE FOR EVERY NEED

142 USEFUL ARTICLES

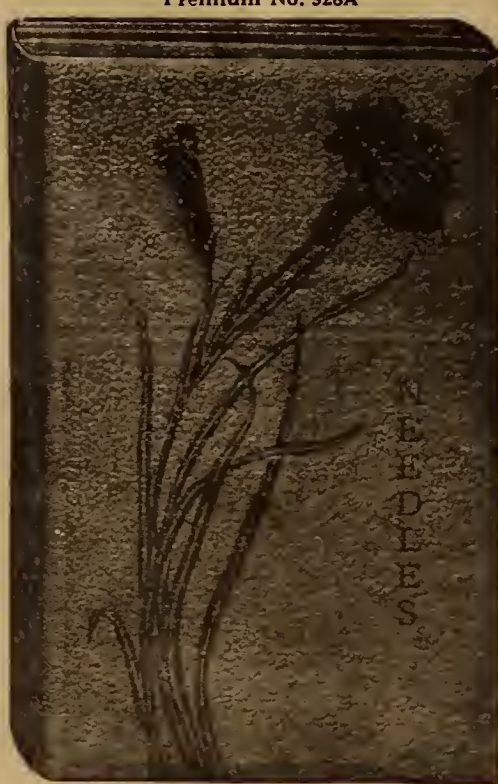
- | | |
|-------------------------|-----------------------------|
| 1 Bone Crochet | 75 Gold-Eyed Sewing Needles |
| 1 Steel Crochet | 51 Art Work Needles, viz.: |
| 1 Steel Bodkin or Tape | 15 Silk and Cotton Darners |
| 1 Punch Work | 15 Milliners' Needles |
| 2 Medium Wool Darners | 15 Crewel or Embroidery |
| 2 Fine Wool Darners | 3 Rug or Tapestry |
| 2 Medium Yarn Darners | 3 Chenille Needles |
| 2 Fine Cotton Darners | 1 Bone Stiletto |
| 2 Medium Cotton Darners | 1 Bone Tape or Ribbon |

We Will Send You the "Dandy" Needle Outfit FREE for a Club of Only TWO Subscriptions at 35 Cents per Year

If you do not care to get up a club we will give you the sewing set with your renewal subscription to FARM AND FIRESIDE as follows:

- | | |
|---------------------------|---------------|
| 1. FARM AND FIRESIDE | All For |
| THREE YEARS AND | |
| The Needle Book, Postpaid | \$1.00 |
| | |
| 2. FARM AND FIRESIDE | All For |
| ONE YEAR AND | |
| The Needle Book, Postpaid | 60c |

No matter when your subscription expires. Send us your renewal and we will add the new subscription to your old one. You will want FARM AND FIRESIDE anyway and we may not be able to make this offer again. Send your order to-day. Use the coupon below.



Showing Book Closed, Size 3 x 5 Inches

FARM AND FIRESIDE, SPRINGFIELD, OHIO

Please find enclosed \$_____ for which extend my subscription _____ years and send me, prepaid, the "Dandy" Sewing Set.

Name _____

Post Office _____

R. F. D. or St. _____ State _____

F. & F. 9-2



Automobiles

Motorcycle Question

By Carlton Fisher

IS a motorcycle with side car as satisfactory for a young couple as an inexpensive automobile?

This question must depend for its answer on the use to which either machine will be put. A motorcycle with side car will go nearly twice as far as an automobile for the same expense, including gasoline, oil, and tire wear. The riding qualities are about the same, as is also the speed. In addition, the motorcycle does not require as much storage room, and its upkeep is less.

If transportation for two people is all that is desired, the motorcycle with side car will give satisfactory service.

But for all-around use, including service in winter, ability to carry extra passengers and supplies, the automobile would be the better "buy."

Tested Accessories

By W. V. Relma

ANY man who starts to run an automobile, and is mechanically inclined, will acquire a number of extra tools and helpful mechanical devices, both for use in the garage and in the car.

A number of years' experience with automobiles has enabled me to become familiar with a number of devices and tools which will be helpful to the novice.

If the driver will carry a small tin box with a screw or clasp cover, he can keep at hand a number of little odds and ends any one of which will be very valuable when needed. Nails, screws, tacks, cotter pins, keys, valve plungers for tires, pieces of string, wire, etc., may be mentioned as desirable.

One very desirable article for the tin box is known as a compression coupling. One evening while driving I suddenly smelled a strong odor of gasoline. I put on the brakes, jumped out of the car, and discovered a leak had started in the gasoline line. I immediately took up the floor boards and shut off the gas at the tank. The next idea, of course, was the necessary method of fixing the leak. I found that a constant rubbing against the frame had caused it.

As I had a compression coupling in my tool box, I cut the gasoline line in two at the leak, and filed both edges smooth and clean. After this all that was necessary was to slip one end of the coupling over each part of the gas line and screw together. This makes a perfect gasoline-pipe connection, and is absolutely permanent if properly done. It requires no solder or tools other than a file or a wrench, and in this instance required only about half an hour. This device saved me a walk of five miles to the nearest town for help.

A grease gun is another accessory which is very nice to handle. A large quantity of grease can be loaded into

this gun at one time, and can be forced out by the turning handle in such quantities as desired, into the grease cups.

The style of tire-saving jack shown in the sketch can be adjusted to the height of the wheel hub of the car. When the driver comes in to the garage at night, he can slip one under each hub, and with one downward push of the toe it will raise the wheel off the floor. This removes the car weight from the tires, and will effect quite a saving when storing the car for long periods.

Adjustable wrenches of the style illustrated will be found of great convenience for loosening different sizes of nuts in close quarters, without a constant search for a different size of wrench. A hack saw is another handy article. This saw can be used in more ways around an automobile than one could imagine at first thought. A screw driver with a square shank allows the use of a wrench to turn it. The assistance of the wrench will force in a screw which is impossible to turn with the unaided hands.

The valve lifter illustrated is another useful accessory. Grinding valves is a very important operation which materially adds to the life and effective operation of the car. It is one duty that is continually neglected. There are thousands and thousands of cars in use that need the valves ground. Even good drivers neglect to grind their valves as often as is desirable, because they do not have the proper tools at hand to perform this work easily. Of course, this type of valve lifter will not suit every car, but it is one that is satisfactory for general use. Since I am now equipped to grind my valves easily, I really do not mind it.

A tire valve tool is a rather neglected piece of equipment till tire trouble appears, and then the valve assumes a great degree of importance. When the tire has been removed and it is time to put in a new tube, it may be discovered that either the outer or inner thread of the valve stem of the spare tube is injured. This little tool will correct these injuries to the thread, and will also enable one to remove the valve plunger.

Wind-Shield Light is Adjustable

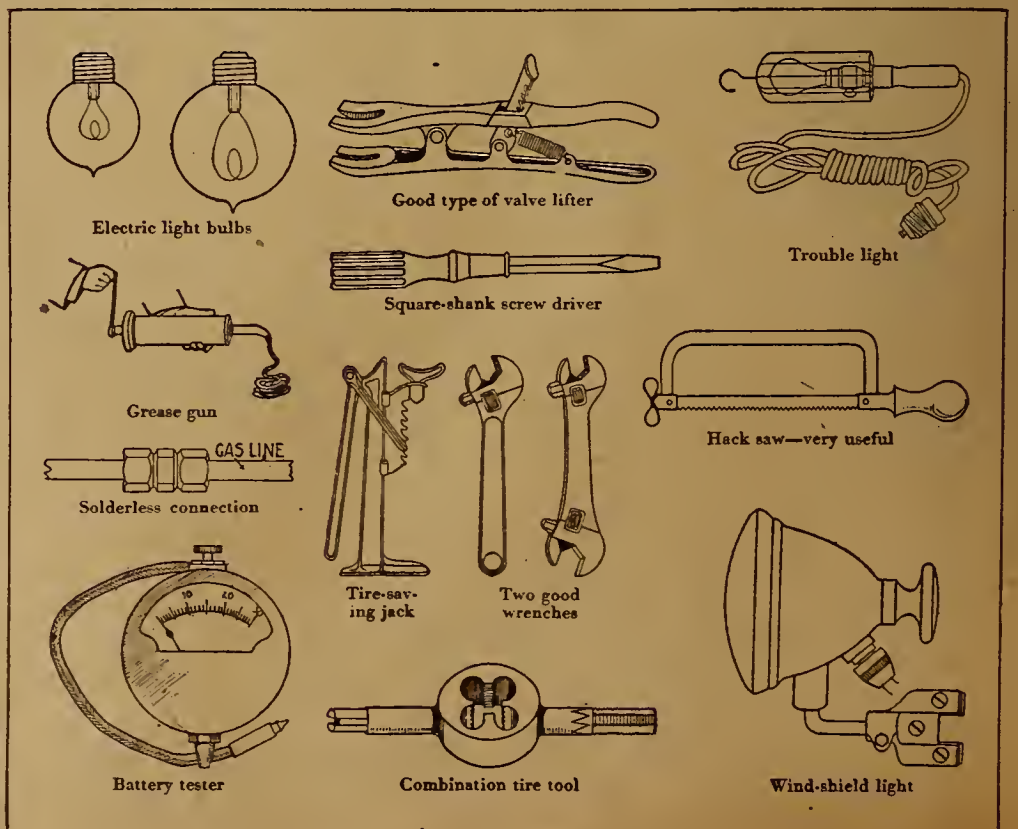
A wind-shield light is a great convenience for night driving, as the light can be turned in any direction desired, and is frequently more pleasant to drive by than the usual headlight. Being high up, it is not spattered by mud.

Frequently the mysterious action of the motor when starting on battery will be explained in a little instrument known as an ammeter, and is used for testing dry batteries. Dry batteries when new should test from 20 to 30, and will not be safe for starting purposes when they test under 10.

A trouble light as shown in the sketch can be attached to the batteries of the car or to the garage wiring, and makes a perfectly safe light to use to examine inaccessible parts of the motor or car. Matches and flame lights, when used for this same purpose, seldom end satisfactorily. The patient after removing his bandages usually regrets that he did not spend \$2 for a trouble light.

I also always carry one or two extra light bulbs in a bulb box. Boxes are specially made for this purpose, and it is useless to carry extra bulbs piled in with the tools.

A reasonable system of preparedness will make the driver unafraid to tackle long trips, and will enable him to bring the car home single-handed.





Crops and Soils

Fertilizing Wheat

By John Coleman

LAST year a neighbor whose field is in sight of my house used a high-grade acid phosphate at the rate of 200 pounds to the acre on a part of his field; the rest of the field was not fertilized. It was a favorable location for wheat and the soil was good. On the fertilized part of this field the wheat ripened evenly and from a week to ten days earlier than where no fertilizer was used. There was also as much difference in the filling of the wheat in favor of the fertilized part as there was in the difference in time of ripening.

For the past few years institute lecturers have advocated only an acid-phosphate fertilizer with a systematic crop rotation in which legumes are depended upon to keep up the nitrogen supply in the soil.

Acid phosphate was the only fertilizer used for wheat for the last year or two by nearly all of our farmers. In several instances the yield to the acre was 25 bushels or more. Many farmers grew from 14 to 18 bushels an acre last year. The experience of wheat growers generally in many States is that it is useless to attempt to grow wheat without fertilizer.

A neighbor spread a thin coat of stable manure over his wheat some time after sowing, with good results. Manure used in connection with acid phosphate on soils deficient in humus and nitrogen gives excellent results. Wheat grown with an acid phosphate alone should always come in a regular rotation in which legumes are grown as a part of the rotation, and there should be a sod to turn at least once in four years. Otherwise the humus supply will run low and the nitrogen supply will also become exhausted. Lime used on wheat should not be expected to take the place of the fertilizer, but it is found to benefit the wheat and also to be a great help toward getting a stand of clover.

Another neighbor used fertilizer on winter wheat fields that had been planted late to avoid infestation with Hessian fly. The fertilizer helped produce a vigorous growth of the wheat before cold weather set in.

Beer Keg Saves Wheat

By John M. Worley

HEAVY rains made heavy fields in eastern Kansas last year. Binders were mired down many times in a field, and farmers had to give up the fight to save the grain before it became overripe and was lost to the harvest. Six horses failed to pull the machinery in most fields.

Ingenious yankees seldom give up hope. And so Milo H. Snodgrass of Cherokee County, Kansas, found a way to save his 65 acres of wheat—and at wartime prices 65 acres of wheat are worth saving. Living within 15 miles of Missouri, it was not impossible for Mr. Snodgrass to obtain an empty beer keg by paying a dollar for it. He brought it home, where a blacksmith

was set at work on it. In half a day the beer keg was a wheel on a binder—a first aid to the other wheels, wide enough to keep from being sunk into the ground by the heavy machinery.

The 20-inch spread of this keg wheel, which was bolted under the frame of the binder just to the rear of the large "bull" wheel, lightened the load to such an extent that Mr. Snodgrass took off three horses, and the remaining three kept the binder going at a brisk walk. So successful was the keg wheel that John Lundin, owner of more than a section of land near Mr. Snodgrass, built two of them and saved his grain. Other neighbors soon heard of it, and the modest inventor explained it willingly to them.

The material for the device consists of an eight-gallon beer keg; a piece of two-inch pipe 21 inches long, threaded on each end and used as the axle; two two-inch pipe elbows which are screwed onto the axle ends; two pieces of pipe, same size, threaded on one end and flattened at the other, threaded ends inserted in elbows, while flattened ends are bolted to frame in upright position; two iron braces, one for each end of axle, running forward to frame. The holes in the keg ends are reinforced by blocks nailed on, and the wooden bearings may be oiled frequently.

To Cut Down Feed Bills

"FORESTALL the big feed bills and lean cattle in the Southern States this winter by cutting all available grass plots about the farm for hay," says J. R. Ricks of the Mississippi Experiment Station. "Indications are that many concentrates will be high-priced this fall. Even a poor quality of hay has as much feeding value as cottonseed hulls, and cows will readily eat it in the winter months."

Mr. Ricks suggests that now is a good time to make loafing acres give good returns by cutting off the crab grass, water grass, or other volunteer grass crop and saving it for winter forage. Where Johnson grass grows well there is sure to be a good hay crop, and many native grasses make excellent hay, which may be saved at a minimum cost. Leaving the value of the hay out of consideration, it is worth while to cut the grass and weeds off the soil, because this leaves it in better shape for planting small grains and clovers this fall.

Made Money by Accident

By W. F. Wilcox

CLAUDE MCLAUGHLIN of Montrose County, Colorado, made \$231 from alfalfa seed from exactly two acres last year, entirely by accident. This two acres of alfalfa was in its second year's growth, but was on new and unfertile land and had been so starved for water that he thought it not worth cutting for hay. He therefore let it stand and continued without water, preferring to use his irrigation water on what he thought were more valuable crops. In the early fall he noticed the alfalfa had gone to seed, and there was a surprisingly large amount of seed. So it was cut and stacked and in March, 1916, threshed. He sold the seed and got \$231 from the two acres. His culture was the proper thing to grow alfalfa seed. Have a thin stand and irrigate just enough to keep it fresh but not to force the growth of rank stalks. Then it will make good bloom and much seed. Mr. McLaughlin also had three fifths of an acre of onions that produced 230 sacks, which he sold at \$2.50 per hundredweight. At this rate of production and price an acre of onions would bring in close to a thousand dollars.



This boy and girl are glad they live on a farm. Their father has given them a share in the late summer garden. They are happy and contented workers

Barrett Money Savers for Farmers

WE WANT you to read about the articles mentioned in this advertisement and then see if you are not losing money by failing to use all or some of them. Every one of these is a leader, a specialty for farm and home and we'll be glad to tell you more about them.

EVERLASTIC ROOFING—Here is a ready roofing of wonderful value. No better "rubber roofing" has ever been made at the price. Everlastic Roofing is ready, easy to lay and sure to wear. You don't need skilled labor to lay it. Durable and inexpensive. The solution to your roof troubles.



EVERJET—On every surface exposed to the weather, you need Everjet Elastic Paint. It is the best carbon paint ever made and carbon paint is a sworn enemy of the weather. There isn't a felt or metal roof in the country that could not be improved by a coat of Everjet. It clings, penetrates and protects. Everjet is wonderful on iron work and farm implements. Its sparkling black surface is tough and elastic. Never cracks or peels. You ought to keep this paint on hand always.

CREONOID—When it's so easy to have healthy, profitable live stock, why not try this idea. Put some Creonoid in the barn and poultry house and spray the cattle. Creonoid insures clean, healthy cows, horses and chickens. Creonoid is the most effective lice destroyer and cow spray ever made. You need it, perhaps right now. Wonderful in the piggery, too. Makes better porkers. Sold in 1, 5 and 10 gallon cans, half barrels and barrels. Follow directions carefully.



WOOD PRESERVATIVE—Do you want to add many years wear to your fence posts and exposed woodwork? You can do it by treating them with Barrett's Grade-One Creosote Oil. Its use is the safe, practical and inexpensive way to make fence posts, clothes posts, or porch steps immune to the attacks of weather, earth or moisture. You know the preservative value of creosote. Being a liquid oil it can be applied by simply dipping, spraying or brushing. No expensive method. That's why Barrett's Creosote Oil is practical for the farmer. And it actually penetrates deeper into the wood than any other preservative. Protect your timber with Barrett's Grade-One Creosote Oil and begin now.

ELASTIGUM—Don't tinker, delay and experiment with the little everyday repairs. We have a product that makes such repairs not only cheap and easy, but permanent. It's called "Elastigum" because it's a tough, elastic, adhesive, waterproof cement. Has no equal for joining or relining gutters, sealing joints or stuffing cornices. Invest in some Elastigum now and have an ever-ready handy man in future. A trial will prove that it's indispensable. Make that trial now.



"TYLIKE" SHINGLES—All that is desirable in a roofing is combined in Barrett's Tylike Shingles. They beautify any building. They are fire resisting. They are inexpensive. They are waterproof without painting. You ought to see these shingles. They are made of crushed slate on a tough, waterproof base. Pure natural slate, in red or green, without artificial coloring. Aristocratic in everything but price. You lay them like slate, but they look better and cost less.

Sold by all good dealers everywhere. Send for new "Money Saver" booklet.

The Barrett Company

New York Chicago Philadelphia Boston St. Louis Cleveland Cincinnati Pittsburgh Detroit
Birmingham Kansas City Minneapolis Nashville Salt Lake City Seattle Peoria
THE PATERSON MANUFACTURING COMPANY, Limited; Montreal Toronto
Winnipeg Vancouver St. John, N. B. Halifax, N. S. Sydney, N. S.



OUR TRAPPER'S FRIEND AND GUIDE FREE

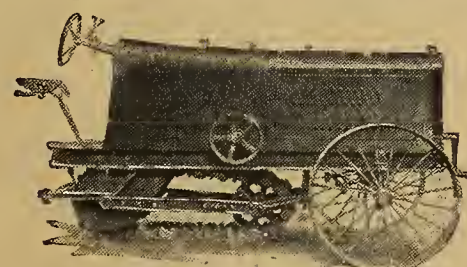
WEIL PAYS CASH for furs and remits quicker than any other House. Furs much higher. Big money trapping. Only house holding shipments 5 days without your asking. Our Trapper's Guide is as different from others as an Auto from a Stage Coach. It's free. Price list free. Reference your Bank. In business 45 years. The Square Deal House. **WEIL BROS. & CO., Box 69, Ft. Wayne, Indiana**



BROWN FENCE BARGAIN BOOK AND SAMPLE

Over 25,000,000 rods Brown Fence already sold to 400,000 farmers. Factory Prices. Freight Prepaid. 150 styles. 12¢ per rod up. Gates and Steel Posts, too! Write postal. **THE BROWN FENCE & WIRE CO. Dept. 21E Cleveland, Ohio**

Tom Thumb Tractor



**20 H. P. on the Belt
12 H. P. on the Drawbar
GUARANTEED**

Bridges the soft spots, lays and runs on its own steel track. Will not slip, mire or pack the soil.

SEND FOR CATALOG

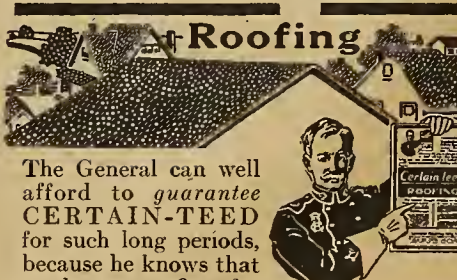
See the Tom Thumb Tractor at the following demonstrations:

Fremont, Nebraska - - - - Aug. 7-11
Cedar Rapids, Iowa - - - - Aug. 14-17
Bloomington, Illinois - - - - Aug. 21-25
Indianapolis, Indiana - - - - Aug. 28-Sept. 1
Madison, Wisconsin - - - - Sept. 4-8

Tom Thumb Tractor

11 30th Ave. S. E. Minneapolis, Minn., U. S. A.

Certain-teed Roofing



The General can well afford to guarantee **CERTAIN-TEED** for such long periods, because he knows that no better roofing for farm and other buildings can be made.

CERTAIN-TEED is guaranteed for 5, 10 or 15 years according to ply (1, 2 or 3). And this liberal guarantee is backed by the world's largest manufacturers of roofing and building papers.

Experience has proven that **CERTAIN-TEED** outlasts its guarantee and is very different from cheap, ready roofing sold by mail.

CERTAIN-TEED is safer than wood shingles; looks better than galvanized iron or tin; is easier and quicker to lay and cheaper than either.

Get **CERTAIN-TEED** from your local dealer, whom you know and can rely upon. Sold by good dealers everywhere at reasonable prices.

General Roofing Mfg. Co. World's Largest Manufacturer of Roofings and Building Papers

New York City, Chicago, Philadelphia, St. Louis, Boston, Cleveland, Pittsburgh, Detroit, San Francisco, Los Angeles, Milwaukee, Cincinnati, New Orleans, Minneapolis, Seattle, Indianapolis, Atlanta, Richmond, Des Moines, Kansas City, Houston, Duluth, London, Sydney.

The World's Most Powerful Low Priced Car

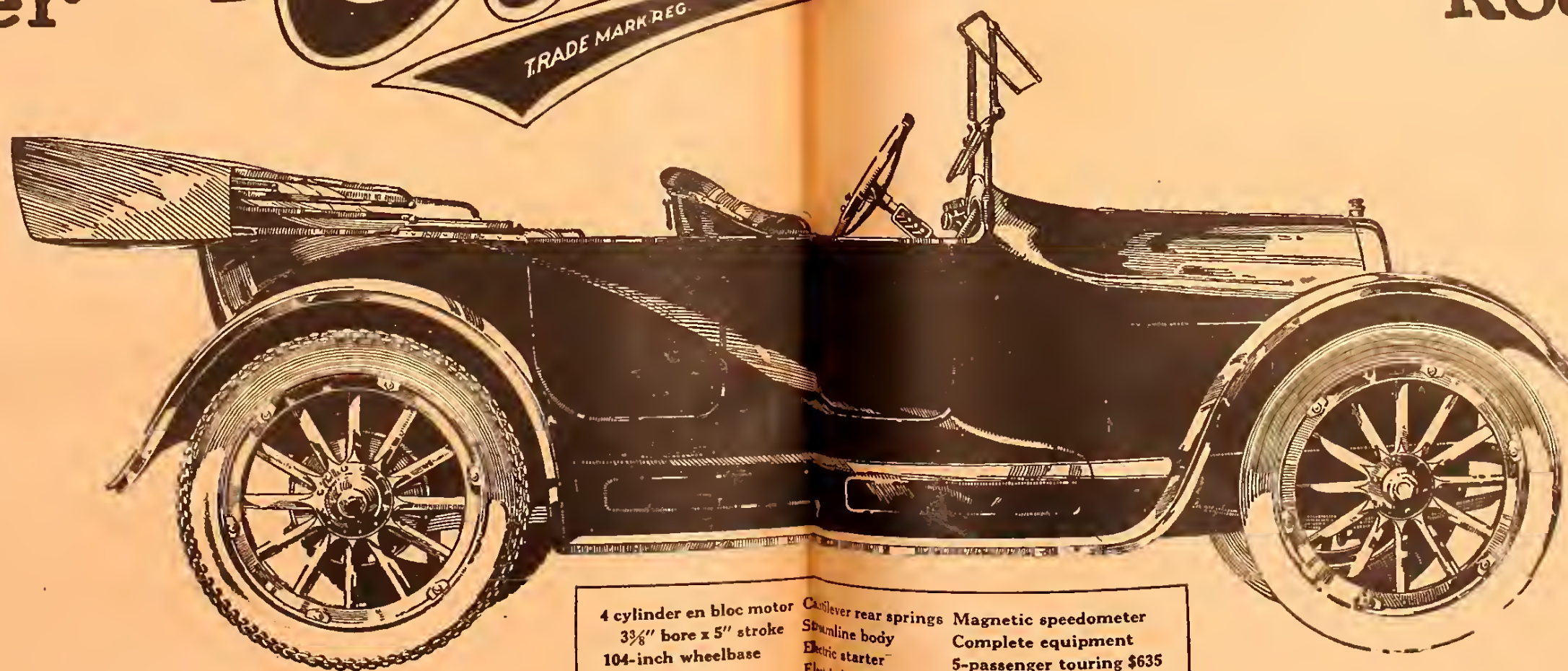
Announcing the New Series

31 1/2
Horsepower

75-B

Overland
TRADE MARK REG.

\$ 635
5 PASSENGER TOURING CAR
Roadster \$620
f. o. b. Toledo



4 cylinder en bloc motor 3 3/8" bore x 5" stroke 104-inch wheelbase 4-inch tires	Cantilever rear springs Streamline body Electric starter Electric lights	Magnetic speedometer Complete equipment 5-passenger touring \$635 Roadster \$620
---	---	---

Catalogue on request. Please address Dept. 575
The Willys-Overland Company, Toledo, Ohio
Made in U. S. A.

This newest Overland is the world's most powerful low-priced car.

It has a 31 1/2 horsepower en bloc motor that is a perfect marvel for speed, power and endurance.

By increasing the bore of the motor from 3 1/8 to 3 3/8 we are able to offer a power plant which at 1950 R.P.M. develops full 31 1/2 horsepower.

Tests under every condition in all parts of the country demonstrate that it easily develops better than fifty miles per hour on the road.

Speed of course varies under different conditions, but in practically every instance

it has been getting fifty miles an hour and with ease.

We have scores of telegrams showing that eighteen to twenty-five miles per gallon of gasoline is not unusual.

The performance of this car is almost beyond belief.

Take any other low-priced car on the market. Pit it against this new Overland. Compare them for sheer speed, for abundance of power, for riding comfort and economy, and you'll find this car will back anything else clean off the boards.

That's a strong statement, but a fact nevertheless.

Try it yourself and see. Here are more important facts.

It has four-inch tires which are more than generous for a car of this size.

Not only has it a large and roomy body, but it has an attractive, up-to-date streamline body.

It has the latest and most improved system of ignition.

It has the cantilever springs—the easiest riding springs in the world.

What's more, it's complete. Not a thing to buy. You get the finest Auto-Lite electric starting and lighting system, magnetic speedometer, one-man top, demount-

able rims and practically every accessory found on the highest priced cars.

From a driving standpoint, the new car is ideal. It's light, easy to handle and anyone can drive it.

Take one look and be convinced.

And mark these words—the car is destined to be regarded and referred to as one of the really great achievements of the great automobile industry.

Yet it only goes to prove how big production can cut cost and save you money.

First come, first served. See the nearest Overland dealer and place your order now.

ROOFING

At Rock-Bottom Prices

Get Our Freight Paid OFFER

Don't consider investing your money in roofing, ceiling, siding, etc., until you have received our Roofing Book which quotes

Lowest Prices Ever Made On World's Best Roofing

We sell direct to you from the largest sheet metal plant in the world. We save you all middlemen's profits. We prepay freight and give you a binding guarantee against lightning losses. Send coupon for free book—and read our proposition in full.

Lightning-Proof, Fire-Proof and Rust-Proof
 Edwards Tightcote Roofing can be bent, twisted, or struck with lightning, and galvanizing will not crack or flake. Bend it or hammer it, you can't loosen or scale galvanizing. This means an everlasting galvanized roofing that will last as long as building.

"Reo" Metal Cluster Shingles

Spanish Metal Tile

Edwards' Patent "Grip-Lock" "REO"

Metal Shingles are rust-proof on edges as well as sides. One man can lay them. They interlock; cannot come off. Nail holes all covered by upper layer. Forever wind and weatherproof.

GARAGE \$69.50
 Lowest price ever made on Ready-Made Fire-Proof Steel Garages. Set up any place. Postal brings Garage Book showing all sizes, styles, etc.

Hammer and nails only tools needed.

Samples FREE Send coupon for World's Greatest Roofing Book and Free Samples. Book will convince you that we can save you a lot of money on any kind of roof you need, also on ceiling, siding, wallboard, etc. Fill out coupon and mail today. Ask for Book No. 958.

The Edwards Manufacturing Company,
 908-958 Pike Street, Cincinnati, Ohio

BARGAIN BOOK COUPON

The Edwards Manufacturing Company,
 908-958 Pike Street, Cincinnati, Ohio
 Largest Makers of Sheet Metal Products in World
 Please send FREE Samples, Freight Paid Prices and World's Greatest Roofing Book No. 958.

Name.....

Address.....



Live Stock

A Scrub Sire Doesn't Pay

By E. A. Trowbridge

QUALITY becomes more essential to profit in live-stock farming each season. When labor, land, and feed were cheap it was possible to realize a profit on live stock of an inferior grade, but with the present high cost of these production factors and a constant discrimination on the market against the "scrub," it has become evident that the greatest profit can be expected only from live stock of good quality. It may be possible for the feeder or dealer to make a profit on inferior live stock if he is able to buy it sufficiently cheap and sell quickly, but usually someone has not realized the greatest possible profit when a scrub goes to market. If it is not the feeder, it is the man who produced the animal.

At the Missouri Experiment Station lambs sired by a \$30 mutton ram and out of Western ewes weighed 2.54 pounds more at three months of age than lambs out of the same kind of ewes by a scrub ram, weighed at four months. The well-bred lambs were ready for market a month earlier, they ate only about one half as much feed, and they sold for nearly \$3 more per hundred than did the lambs by the inferior ram.

Just recently two Utah ranchmen are reported to have sold their cattle on the same market on the same day. Both used the same amount of national forest range a head, and paid the same grazing fee. One had used good bulls to produce his cattle, the other had not. The good cattle brought \$40 a head more than the poor cattle.

Whether the live stock is cattle, hogs, sheep, or horses, the good ones are appreciated when sold, and consequently bring higher prices and normally yield greater return. The most practical means of improvement is through the use of good sires, for the male may become the parent of from 40 to 100 animals each year.

About Rabies

THE term "hydrophobia" was employed as a name for the disease of rabies at a time when it was thought that fear of the sight of water was one of the best symptoms of the disease.

It is principally a canine disease, being seen mostly in dogs, and usually transferred from dog to dog, dog to man, or dog to other animals. Only a few animals are not susceptible to it. Other than the dog, most cases reported have been in cattle. A number have been made where hogs were affected, and several in horses and sheep.

There was an outbreak of rabies recently in a North Carolina county. Seven head out of a head of eighty cows in one pasture died, and the clinical symptoms were typical of rabies. However, the brain from one of the animals was removed and sent to a laboratory, where the "Negri Bodies" which are so characteristic of the disease were found

in the cellular structure of the brain. The natural manner of transmission of the disease is by means of introducing saliva into or under the skin with the bite of an infected animal. With few exceptions, the bite is from a dog. If he is not infected, the bite cannot result in the disease, nor will the bite from all infected animals develop rabies. The failure to know this fact has made many so-called "madstones" famous.

The length of time occurring between the bite of the animal and the development of the disease varies from a few weeks to several months in rare instances. Dogs bitten by another dog should be kept confined and under observation for at least two months, though most cases will develop in one half the time.

There are two forms of rabies most commonly observed in dogs. One is the "furious" and the other the "dumb," and the terms used are descriptive of the general symptoms of each. Paralysis, indicated by an inability to swallow feed or water, is present in the latter stage of each form. A positive diagnosis may be made in many cases from the symptoms alone, but in other cases a laboratory examination is necessary. This consists first of a microscopic examination of some of the brain substance, and if the bodies are found, a positive diagnosis is made. Otherwise it will be necessary to reproduce the disease in a small laboratory animal before such a diagnosis can be rendered.

Another and much preferable laboratory test is now in process of development. This consists of taking a sample of blood from a living or healthy person or animal which has been bitten by a diseased animal and submitting the sample to a test. Such a test will enable the authorities to use the Pasteur preventive treatment on only such persons or animals whose blood shows a positive reaction.

A Good Horse Feed

IN COMPARISON with any of the grain rations, oats are the best single grain ration for both mature horses and colts and for mules. There is no other grain so safe to feed and from which such satisfactory results are obtained. The stockmen of Clemson College advise, however, that it is absolutely necessary that oats be clean and entirely free from mold in order to obtain best results in feeding to colts. "Musty" oats are dangerous for colts.

A fair allowance of oats for colts after weaning is as follows:

Up to one year of age, from 2 to 3 pounds daily. From one to two years, 4 to 5 pounds daily. From two to three years, 7 to 8 pounds daily.

The best way to feed oats is in the whole grain, the expense of crushing not being justified unless colts suffer in teething, in which case it is advisable to feed steamed crushed oats, which are very nourishing and appetizing. It is always wise to feed plenty of roughage to growing colts. Feeding concentrated feeds in excess is discouraged, as it is important that the digestive tract be developed by distending it during the growing period. Ungainly, large-barreled colts may annoy the feeder, but this condition always disappears with maturity.

Proper feeding of colts should always be accompanied by plenty of outdoor exercise for the young animal. In no way can a colt be ruined so easily and surely as by liberal feeding with lack of exercise. Experience proves that close confinement and the raising of good colts do not go together.

INSIDE HEALTH

Natural Way to Look Well.

Show a woman an easy, comfortable and healthful way to improve her appearance and she is naturally interested.

Coffee is one of the enemies of fair women, for in most cases it directly affects the stomach, and the result is a sallow, muddy skin and ills in different organs of the body.

A lady speaking of how coffee affected her writes:—"I was very fond of coffee but was under the care of the doctor most of the time for liver trouble. My complexion was bad and I had a pain in my side steadily.

"When I concluded to quit coffee and use Postum, I had it made according to directions and from the very first cup we liked the taste of it.

"In a short time the pain left my side and my friends began to comment on the change in my complexion and general looks. I have never seen anything equal to the benefit I got from making this change." Name given by Postum Co., Battle Creek, Mich.

Postum comes in two forms:

Postum Cereal—the original form—must be well boiled. 15c and 25c pkgs.

Instant Postum—a soluble powder—dissolves quickly in a cup of hot water, and, with cream and sugar, makes a delicious beverage instantly. 30c and 50c tins.

Both forms are equally delicious and cost about the same per cup.

"There's a Reason" for Postum.

—sold by Grocers.

RAISE BELGIAN HARES

FOR US. Big profits. We supply stock reasonable and show you how to sell them at \$2.00 to \$5.00 each; also Cavies, Mink, Skunk, Fox, Squirrels, Pheasants, Frogs, etc., instruction books and sample copy of our Pet Stock Magazine for Dime. None Free. WANTED Representatives. Address THE BELGIAN HARE, Box 11, Holmes Park, Mo.

Overland Given

New 1917 Model FREIGHT PREPAID
 If you live in the country or town under 10,000, you can become the owner of this new 1917 Overland without cost, as a reward for a few weeks spare time work in your own community. Write today. C. F. ALDRICH, Mgr., St. Paul, Minn.

Summer Club Offers

We have just completed arrangements which enable us to make some very attractive summer club offers. The magazines are all high grade and the prices remarkably low.

Good for 30 Days Only

Offer A	HOME LIFE, 1 year - - - \$0.25	Our Price 75c
	POWER FARMING, 1 year - - - .50	
	THE HOUSEHOLD, 1 year - - - .25	
	FARM AND FIRESIDE, 1 year - - - .50	
	Total Value - \$1.50	
Offer B	HOME LIFE, 1 year - - - \$0.25	Our Price 65c
	GENTLEWOMAN, 1 year - - - .25	
	THE HOUSEHOLD, 1 year - - - .25	
	FARM AND FIRESIDE, 1 year - - - .50	
	Total Value - \$1.25	
Offer C	BOY'S MAGAZINE, 1 year - - - \$1.00	Our Price \$1.15
	POULTRY SUCCESS, 1 year - - - .50	
	HOME LIFE, 1 year - - - .25	
	FARM AND FIRESIDE, 1 year - - - .50	
	Total Value - \$2.25	
Offer D	WOMAN'S WORLD, 1 year - - - \$0.35	Our Price 65c
	PLAIN AND FANCY NEEDLEWORK, 1 year - - - .35	
	FARM AND FIRESIDE, 1 year - - - .50	
	Total Value - \$1.20	

With the price of white paper going up every day, magazines are likely to raise subscription rates at any time. Better be on the safe side—

Send Your Order Now

FARM AND FIRESIDE
 Springfield, Ohio

LET ME TELL YOU HOW TO MAKE \$5.00 PER DAY

I have over a hundred men who are doing this right now, YOU can do what has been done.

address

L. V. Rodda
 The Crowell Publishing Company
 Springfield, Ohio

This Car GIVEN

and the Agency for your Territory

5 Passenger—26 H.P. Electric Lights and Starter—Demountable Rims—Non Skid Tires in Rear—Fully Equipped. A wonder car and you can get one without cost. Write now for full information. Learn how you can get this car without cost and make big money in the automobile business. Don't delay—the offer is strictly limited. Write at once. A postal will do. Address me personally. Ralph Birchard, Pres.

Birch Motor College, Inc. Dept. 970, Tower Bldg., Chicago

Build It Yourself

Here is the first real, practical idea for a perfect home-made concrete mixer ever yet produced. Endorsed by all farm papers, by concrete engineers and by hundreds of users. You make it with a few 2x6's, an oak barrel and a few castings. Send your name and get full instructions and

Blue Print PLANS FREE

It will mix 2 1/2 cu. ft. at a batch, has self-tilting dump, runs by hand or 1 h. p. engine. Will keep from 2 to 6 men busy. Does finest work, equal to any \$200 machine—and costs you almost nothing in comparison. Just drop me your name on a post-card today. Full instructions and blue print plans will come at once. FREE.

SHELDON MANUFACTURING CO., Box 3416, Nehawka, Neb.

Mix Your Own Concrete

Get This Book On Home Heating—FREE

Here's Furnace Comfort at Retail Stove Cost

Mail a postal or letter today for our new book telling about the popular Kalamazoo Pipeless Furnace. A big money saver. Low in price—easy to install—a strictly high quality warm-air furnace. Quick shipment—direct from manufacturers. Cash or easy payments. We pay freight. 360 days' approval test. \$100,000 Guarantee. Write today. Ask for Catalog No. 921.

Kalamazoo Stove Co., Mfrs.
 Kalamazoo, Mich.

A Kalamazoo Direct to You



This five-week-old Shorthorn veal dressed 150 pounds and sold for \$30. The calf was fed whole milk with wheat bran and corn cob meal

Starting with Hogs

By R. B. Rushing

FROM my own experience and observation I believe the new breeder should buy a developed or tried sow. She will teach him how to raise a nice litter of pigs if given half a chance.

Don't buy a little half-grown gilt because she is "registered," or some old skate at a price that will enable the old breeder to buy a good one. Consult the breeder as to three or four of his best-producing sows and learn what pigs they have raised that developed or sold well.

These are important questions to the new as well as the old breeder, and if the seller knew the importance of these answers in keeping the young breeder in business he would go to some trouble in giving out such information. I have always found the advice of an old breeder in whom I have confidence of great value. Of course, you must not be dependent entirely on what others tell you. You must have a certain amount of reliance and confidence in yourself. The field men and auctioneers aim to, and are able, to give wholesome advice, usually.

Plunging Doesn't Pay

I never was an advocate of the new breeder's plunging in and buying the high rollers. The better way in my judgment for a new breeder to start is for him first to consider whether or not he likes to raise hogs. Next, how much he is able to spend, and how many sows he is able to care for properly and not starve the pigs. The most serious as well as the most tempting mistake is to overstock. Even old breeders often stumble here.

The greatest opportunity awaits the new breeder at present, and I would rather bank on making a good breeder out of a man of moderate means who has the know-how to make his pigs thrifty than the man who has money to burn and spends vast sums on idle theories, and talks about the hog as a side line and has an expert to care for them who is trying to raise pigs by starving them and keeping them in hot-houses, while the common-sense man knows that all pigs need air, sunshine, pasture, and good slop.

Any man who can raise good pork hogs can succeed in raising pure-bred ones, and should be satisfied with a reasonable start. I believe every farm, no matter how poor, should have pure-bred stock raised upon it if there is any kind raised. There are always opportunities to get them reasonable. I believe I can see the coming of the greatest era the pure-bred hog has ever seen. I have made it my business to ask the best farmers and shippers the conditions in the hog business in their several localities, and here are some of the answers:

"I can haul all the brood sows in my township in my wagon box at one load."

"No good sows here now, to speak of; cholera scare caused us to sell, and we have not replaced."

Buyers tell me that they never, in one year, shipped so many old thin sows and little half-fat pigs as they have the past twelve months.

Buy Good Individual Animals

A fatal mistake that the new breeder often makes is that of buying an inferior individual because of price. I have no respect for an animal with a long pedigree if he hasn't individual merit. To be sure, I place as much stress on pedigree as any man can, but the individual must be right with the pedigree.

It is always best to attend a sale in person, and by the help of someone of experience and success select one or two animals and buy one or more. Often it is well to buy of several breeders, say one animal of each, and in this way you get a variety of stock for your foundation, and also for a sale if you contemplate having one. If it is impossible to attend the sale, see or write to someone in whom you have confidence; tell him how much you can afford to spend and how many animals you think the amount of money ought to pay for. Usually he will get you a good bunch of stuff. Then pay cash and sell the same way, and you will then know where you are. Anything that will reproduce itself from eight to twelve times a year is bound to make a good business if business methods are used.

Get a few good pure-bred hogs this spring and keep a herd, and they will lift the mortgage or put you on Easy Street. Pork is the fuel that generates the force that propels American industry. The rank and file of this country's laborers are pork-eating people.

Nothing seems to appeal to the appetite of the laboring man like good pork, and somebody must raise this pork—and somebody will raise this pork. Are you going to raise your share?

E.W.

Your Neighbor's Car

Suppose He Buys a Hudson Super-Six

One thing we can't forget in buying cars. That is pride of ownership. The car is a pleasure vehicle. And it spoils the fun to be hopelessly outrivaled in about the same-class car.

The Hudson Super-Six has proved itself supreme.

With this patented motor—certified a stock motor—it has done what no other stock car ever did.

It has made faster speed. It has done better hill-climbing. It has shown quicker pick-up. It has gone 1819 miles in 24 hours, breaking the best former stock car record by 52 percent.

It has beaten race cars by the dozen—cars of a very costly type. It has shown much more power than this size motor ever before developed. It has proved matchless endurance.

Suppose your neighbor gets this car. And you, while paying as much or more, get something less efficient. How will you feel when the two cars meet?

What These Things Signify

You do not care for reckless speed. Such power is rarely needed. But the Super-Six has the capacity. You know it to be the master of the road. It will do what you want without taxing half its ability. And that means economy.

It will cover more ground than lesser cars, without going any faster. This because of its quick get-away when you slow down or stop.

Its greatest supremacy—that of endurance—means years of extra service. How would you feel to have a like-class car excel yours in these respects?

Means 80% More Efficiency

The Super-Six motor—a Hudson invention—adds 80% to motor efficiency. That is, from a small, light motor it gets 76 horsepower. The same size of motor heretofore yielded us 42 h. p.

This result comes through ending vibration, the cause of motor friction. It gives such smoothness as you never knew before. And it means a long-lived motor.

It comes in a car, evolved under Howard E. Coffin, which has long stood for the acme in fine engineering. And it comes in the handsomest, best-equipped model that Hudson has ever designed.

If your neighbor gets it, and you don't, it may mean to you years of regret. In looks and performance, in prestige and endurance, he will have the advantage of you. Your Hudson dealer can prove these things beyond any possible question. And you should know them before you buy any high-grade car.

Any Super-Six owner—there are now more than 10,000—can tell you what it means to own one.

7-Passenger Phaeton, \$1475 at Detroit—Seven Other Styles of Open and Closed Bodies



HUDSON MOTOR CAR COMPANY
DETROIT, MICHIGAN

SHOOT
Ithaca Guns
MADE IN U.S.A.

REASON 2—
SHOOTING QUALITIES
WARRANTED

Shot travel through a gun barrel over 800 feet per second. Shot flatten when driven at this high speed into an improper choke.

Flat shot fly wild and make a poor pattern.

Our taper choke gives a close, hard hitting pattern.

Ask your father, grandfather or any man who uses one.

Shooting qualities guaranteed. Catalog FREE—double guns, \$17.75 up; single trap guns, \$35.00 up.

ITHACA GUN COMPANY
Box 102, Ithaca, N. Y.

Get This
Big "Home Folks"
Stove Book
FREE

Filled
From Cover to Cover

with the latest, up-to-date designs of beautiful stoves and ranges—in a great variety of the newest styles and sizes. And every one the **top notch in quality** at a money-saving wholesale price. Send for this book today—get the Kalamazoo offer on the kind of stove or range you want. Newest improvements—big work-saving features—ranges with white enameled splashers backs and oven door fronts, etc.

Cash or Easy Payments We pay the freight—allow thirty days' trial—one year approval test. \$100,000 Bank Bond Guarantee. Write today. Ask for Catalog No. 183.

Kalamazoo Stove Co., Mfrs., Kalamazoo, Mich.

We make Ranges, Gas Ranges, Furnaces and White Enameled Metal Kitchen Cabinets. We have three catalogs. Please mention which you want.

A Kalamazoo
Trade Mark
Registered
Direct to You

We Pay Freight
and Ship Within 24 Hours



Kiln-Drying Sweet Potatoes

By M. L. Weaver

TEXAS sweet potato growers are making a systematic move to get more money out of this crop. Over a score of ten-thousand-bushel drying houses will be built this year. It has been found that kiln-dried sweet potatoes sell in Texas cities at \$1 to \$1.25 per bushel when banked potatoes are selling at 60 to 65 cents. In past years nearly the entire sweet potato crop has been sold at digging time at an average price of 45 cents per bushel.

A small curing house for the farm, holding 450 bushels, can be built for about \$120. A medium-sized community plant with a capacity of 2,500 to 3,000 bushels will cost about \$400, and a ten-thousand-bushel kiln-drying plant can be built for about \$1,500. The storage cost, including insurance and all charges in the larger plants, will be about 12½ cents per bushel.

This makes it possible to hold the sweet potatoes until they will bring about double the price that can be secured at digging time, and the net increase in return to the grower will be from 30 to 40 cents a bushel after allowing a reasonable shrinkage.

Fence-Row Cherries Pay

By M. G. Kains

ONE of the best ways to make fence rows give a good account of themselves is to plant sour cherries in them. Mr. I. F. Mills of Monroe County, New York, has a hedge of Montmorency cherries all around his estate. He claims that the trees grow on ground that would ordinarily be wasted, and that they form a fairly efficient windbreak in summer and also yield enough fruit to pay well for the investment in trees, time of tending, etc. His trees have required very little time to keep them in good order.

Trees on the fence lines between farms get part of their food from the neighbor's land, and thus make an additional profit—if the neighbor doesn't pick his share of the fruit.

Know Your Commission Man

By R. E. Rogers

IF POSSIBLE I like to make sales of our farm produce direct to the man who will consume it. Unfortunately, there are times when this can't be done. An oversupply of a product that no place had been arranged for, or the decreased sales of the consignee, will leave most any farmer in the lurch once in a while.

So the commission dealer must come into use. In some ways this is unfortunate.

I have known onions to be sold to a Toledo commission firm 25 miles from here to be resold to our local merchants. This made necessary the payment of two sets of freight bills, drayage, and the 10 per cent commission charged to

us, besides the profit the middleman usually puts on top for his share.

But in making the sale to this middleman we will suppose that he is all right and reliable in every way. First it pays to write to him about what you have to sell and to get prices and the condition of the market. Then if things look favorable for your produce send it along. Send as good as you told him it was, or the next time he will not want to bother with you.

We sold three carloads of onions last fall to one man who never saw the onions until after he had bought the whole lot. He saw a sample of perhaps a half-dozen bulbs that were a representation of the lot, and from previous deals he knew that they would be what the samples were.

Then it pays to send a copy of the shipping bill to the dealer as soon as the load is billed out. He then knows about when to expect the goods and will be on the lookout for a buyer. If you just send the goods without notification, the first he knows of their arrival is when the dray delivers them. He may then have to wait some time to find a place to sell. Sometimes this might make an extra loading and unloading on the dray and consequent expenses. Besides that, there are many perishable crops that might easily spoil many dollars' worth by being kept for a later market.

Besides this, it is easy for the receiver to have goods traced if there is delay. Quick tracing often saves a good deal for the shipper.

Apple Gluts Unnecessary

By Wilbur F. Lawrence

THE chief cause of a glut of apples and, consequently, the practice of feeding apples to hogs, is lack of spraying, according to a Nebraska horticultural expert. Sound apples, the result of spraying, can be placed in cold storage because they will keep. But the apple grower who has not sprayed his apples finds them wormy and unfit for storage. So he with thousands of others throws his perishable apples on the market at the mercy of dealers and the public.

He takes what he can get because he must sell. You seldom hear of a glut of apples late in the winter, and the winter and the spring are the times when the man who raises sound apples sells them and gets his money.

An Acre of Celery

By J. B. Dixon

ONE acre of celery properly cared for represents a lot of work, extending from the time of planting the seed in the greenhouse or hotbed, transplanting the plants, setting them in the open field, watering, cultivating, spraying, harvesting, bunching, and marketing. But the returns from a bumper crop of say 40,000 heads from the acre, averaging 50 to 60 cents a dozen heads, pays well for the labor and care bestowed on this crop.

"Spraying to prevent blight and rust is of the utmost importance to insure a good yield of best quality celery." So says Mr. Samuel Beech, a Canadian truck grower. He uses Bordeaux mixture regularly whenever there is the slightest indication of blight or rust. As he cultivates the crop he watches for indications of leaf injury, and finds his horsepower spraying outfit as necessary as his cultivator. The cost of spraying materials is considerably higher since the war began, but Mr. Beech finds that the spraying cannot be omitted even were the cost of spraying materials several times as high as it is at present.

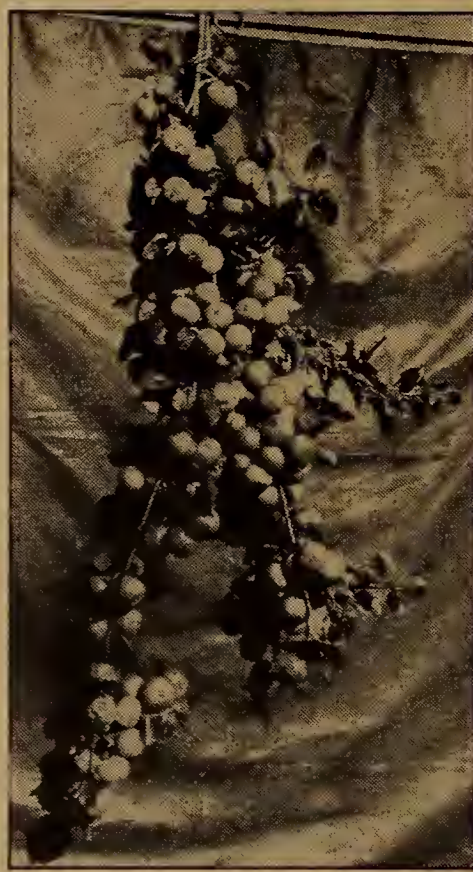
Intensive Care Won Results

By A. J. Titus

THE branch pictured is so badly overloaded that it was broken from a Wealthy apple tree by a windstorm in the fall of 1915. The tree is one of an orchard owned by Jay Crawford, Newaygo County, Michigan. This tree and the entire orchard was badly infested with San José scale in 1913, hence produced only a little, inferior fruit for several years. It was thoroughly treated by the usual spraying and pruning methods in 1914. The load of apples developed the year following the spraying is convincing evidence of the good results of the treatment.

Nevertheless, there is almost as much danger from allowing trees to overbear in the way shown by the picture as from the effects of the scale, which sucks the life juices of the trees in another way.

The branch pictured held 86 healthy-looking Wealthy apples, and the entire orchard was well loaded with apples the same year. Mr. Crawford is now a



strong champion of spraying and modern methods of orchard handling, and intends reducing overloads by thinning in the future.

To Kill Blackberry Sprouts

By A. B. Tinsley

CUT the briars when they have practically completed their growth for the season, but it is impossible to get all of the briars at the first cutting or first year. There will be some seed in the ground germinating which will start the following year. But the second cutting if properly done will finish the job. This plan I have tried and know it to be fatal to the briars, at least on my farm in West Virginia.

Beets Will Not Aid War

By W. F. Wilcox

IN COLORADO a great many cattle and sheep are fattened every year on the by-products of the sugar-beet factories. Some concern was recently felt by stock owners when the sugar factories were made offers by ammunition makers of explosives to buy up all the molasses product of the factories. From molasses is manufactured denatured alcohol, which is an ingredient of powder. The sugar companies have refused any shipments of molasses for this purpose, in spite of the fact that the price thereby would go up from \$8 to \$12 a ton. Such price would make molasses almost prohibitive for feeding purposes. The sugar companies, however, felt that the munitions market would be only temporary and that even though a harvest might be reaped from that source before the war ended it would be poor policy for the reason that a large and profitable molasses-feed market would be alienated. Cattle feeders are glad to know that the factory molasses supply will be awarded them at the usual prices.

WHEN cutting gladioli blooms be sure to cut the flowers when the lower flower is just opening. In this way the faded flowers can be cut off an inch or two each day and retain the good effects of the lower blooms for a considerable time. The gladioli and most other fall-blooming flowers should have plenty of water when the buds show well, to insure their full development.

BUILDING BONES

Of Great Importance That Children Have Proper Food.

A child will grow up weak or strong and sturdy, depending largely on the kind of food given.

That's why feeding the youngsters is of such great importance. The children do not select the food—the responsibility rests with the parent or guardian, or with you if you select the food for a boy or girl.

A Calif. lady writes: "When my little niece was taken sick and medical aid was called, one physician pronounced it softening of the bones and gave but little hope for her recovery. For weeks she had been failing before her parents thought it anything but trouble from teething."

"She had been fed on mushes and soft foods of different kinds, and had become a weak little skeleton of humanity that could not much more than stand alone."

"The doctors changed her food several times until finally she was put on Grape-Nuts which she relished from the first and ate at almost every meal and her recovery has been wonderful. She has gained in strength and weight and is now a rosy-cheeked and healthy little girl, still clinging to her Grape-Nuts."

"It is plain the food has saved her life by giving her body the needed material to keep it well and the bone material to build with."

"There's a Reason." Name given by Postum Co., Battle Creek, Mich.

Ever read the above letter? A new one appears from time to time. They are genuine, true, and full of human interest.

AGENTS to sell men's Hats Direct from the Factory. Send for catalog P. S. & G. Hat Manufacturing Co., Morristown, N. J.

DRY YOUR FRUIT

and Vegetables by steam in two hours on the "Granger" Fruit and Vegetable Evaporator. Cheaper than canning—Less work—No loss—Cost, \$3.50, \$6.00 and \$10.00. Send for catalog L. EASTERN MFG. CO., 259 S. 4th St., PHILA., PA.

FARM WAGONS

High or low wheels—steel or wood—wide or narrow tires. Wagon parts of all kinds. Wheels to fit any running gear. Catalog illustrated in colors free. Electric Wheel Co., 13 Elm St., Quincy, Ill.

PIGEONS PAY

Better Than Chickens. Young pigeons (squabs) bring 40 to 50c each when 3 to 4 weeks old. Big demand in city markets. Each pair of pigeons easily clear \$4 per year. Always panned up. Very little space and money needed to start. Free Book explains all. MAJESTIC SQUAB CO., Dept. 10, ADEL, IOWA.

KITSELMAN FENCE

Get It From the Factory Direct. HORSE-HIGH, BULL-STRONG, PIG-TIGHT. Made of Open Hearth wire, heavily galvanized—a strong, durable, long-lasting, rust-resisting fence. Sold direct to the Farmer at wire mill prices. Here's a few of our big values: 26-inch Hog Fence - 15 cts. a rod. 47-inch Farm Fence - 21 cts. a rod. 48-inch Poultry Fence - 27 cts. a rod. Special Prices on Galv. Barbed Wire. Our big Catalog of fence values shows 100 styles and heights of Farm, Poultry and Lawn Fence at money-saving prices. Write for it today. It's free. KITSELMAN BROS. Box 271 Muncie, Ind.

IF WE SEND YOU THIS BICYCLE



For you to keep and use for a month as your own, then agree to show your bicycle to **Would You** ten or more of your friends and tell them the ridiculously low factory price, easy terms, unusual conditions and exceptional offers I would make, all of which I will explain to you if within ten days of seeing this you will say in a letter or on a postal, "Send particulars of Bicycle Offer" and address your postal card or letter: Personal for G. L. LEWIS, Manager MEAD CYCLE CO., K. 83 Mead Block, Chicago

MEAD CYCLE CO., K. 83 Mead Block, Chicago

Blast Holes for Trees, Get Sturdy Roots

Trees planted in blasted holes developed deeper and stronger root systems than those in spade-dug holes, the N. J. Experiment Station found. Trees in blasted beds bear two years earlier.

Atlas Farm Powder THE SAFEST EXPLOSIVE

The Original Farm Powder is easy to use for digging ditches, clearing land of stumps and boulders, subsoiling, etc. Just punch a hole, load, light a fuse and the work is done. Write for our free book, "Better Farming." It tells how to make more money by using Atlas Farm Powder—the cheapest farm hand.

ATLAS POWDER COMPANY

Dept. FF 26, Wilmington, Del.



Spraying to prevent blight and rust is of the utmost importance to insure a good yield of the best quality celery



Dairying

California's Best Herd

By John Coleman

A HERD of 80 cows with an average butterfat production of 427.18 pounds is the goal which John Hanson, a California Jersey breeder, has reached after thirty years. While many individual cows exceed that figure, they are scattered among a large number of herds. But having 80 all-star producers on one farm is the remarkable thing about this performance.

To Stop Leaky Teats

By Monroe Conklin, Jr.

MANY good cows are butchered because they milk so easily that the pressure in the udder during a big milk flow causes the teats to leak.

Leaking teats can usually be identified by the concave depression at the milk opening. Hard milkers have a convex surface around the orifice. To stop a cow's teat from leaking, the best method I have found is to file a 40-penny spike round off the point, heat the end hot enough to sear, and press it gently into the milk orifice.

Hold in place till the cow informs you that you have done enough. It is better to repeat the operation than to do too much at the first trial. The burn will nearly always cure readily as the result of the soothing influence of the milk, but if it is slow in healing, grease with salve. When the scar forms around the milk orifice, it contracts the opening and prevents the milk from leaking.

Concrete Barnyard

By A. L. Roat

MY BARNYARD, like the average yard on the farm, was always a mudhole after heavy rains. To overcome that annoying feature I determined to concrete the entire yard.

Certainly, there are several things to consider well before undertaking to build a barnyard floor. It must be a permanent fixture; it must withstand the changes in temperature, and not expand or contract beyond proportions calculated in the beginning, because if it does the floor will not remain intact.

I am entirely satisfied with my yard. It is always clean in all kinds of weather. The storms wash it and a broom soon removes any dirt that might accumulate from any cause whatever.

Remember, please, that a concrete yard must shed water and it must be perfectly underdrained. It must be laid properly and it must afford satisfactory footing for the farm animals. A rough-coated floor is best. Then, too, it is advisable to do all drainage work before the concrete is laid. Next, be sure to get the proper slope so that water will run away from the buildings.

When all drainage is taken care of, remove the surface soil at least eight inches, deeper if the ground is heavy. Then tamp the soil well and fill in all holes and hollows.

Perfect underdrainage is very important because if water collects under the concrete floor and freezes, the concrete

will crack and bulge. Large surfaces must be divided into sections. Make joints every 20 feet, at least, in an outside floor. Place four pieces of tar paper between the joints of those 20-foot sections to overcome expansion and contraction.

Mix the concrete for the foundation, and use larger stone for the entire floor than for ordinary walks. Tamp the foundation mixture thoroughly and finish the work before you begin the top covering. When the top cover is laid it must not be smoothed, but should be brushed over with a stiff broom before it sets. Also divide the top surface into two-foot blocks with a marker.

This rough-coated surface assures footing for the farm animals, especially horses if they must start a heavy load. I have never had the least annoyance from a slippery concrete barnyard.

The cost of a concreted barnyard depends upon the size of the surface and the cost of material in different localities. Ordinary stone and sand can be used if one will take the trouble to wash it thoroughly. That can easily be done by putting the sand or stone into a trough having a strong screen bottom and washing with a hose or under a pump.

Calculate the required quantities of material necessary for the complete construction of the piece. To do that mul-



A barnyard paved with concrete keeps the cows cleaner and enables the regular work to go on even in wet weather

tiply the thickness, by breadth and length to get the cubic contents. There is .058 barrel of cement in one cubic foot of complete concrete; there is .016 cubic yard of sand in one cubic foot of concrete, and .0326 cubic yard of stone in one cubic foot of concrete. To get the quantity of each material necessary multiply the decimal proportion by the number of cubic parts in the entire piece. For example:

Suppose the entire yard to be concreted were 100 cubic feet of space. $100 \times .058$ is 5.8 barrels of cement. $100 \times .0163$ is 1.63 cubic yards of sand. $100 \times .0326$ is 3.26 cubic yards of stone. The cost is calculated by multiplying the cost of each article by the quantity required and adding those amounts.

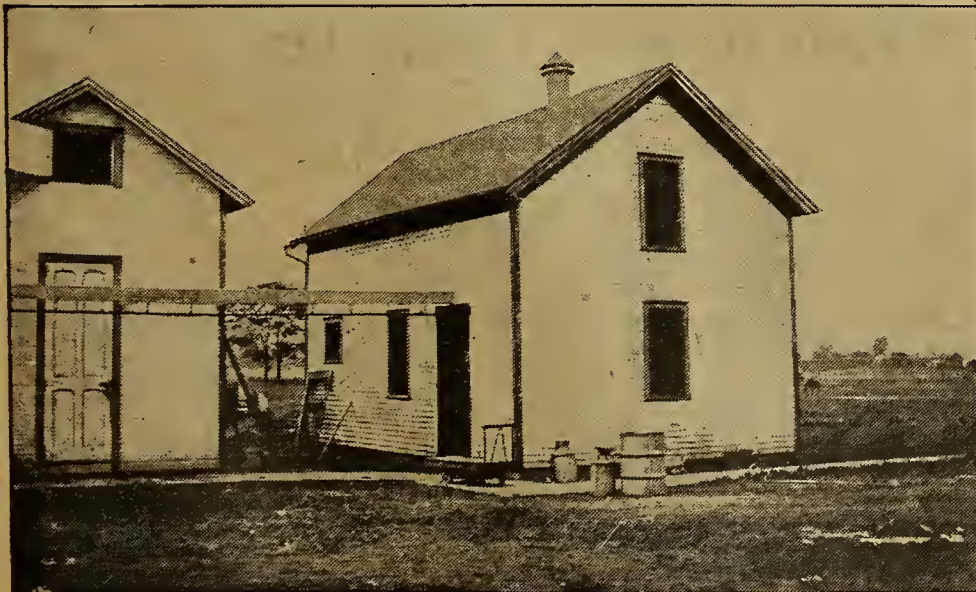
I used the 1-2-4 mixture for the barnyard—that is, one part cement, two parts of sand and four of stone. The material required for a section 6x10 feet is five bags of cement, one-half cubic yard of sand, and one cubic yard of stone.

Plan to Save Steps

By E. M. Rodebaugh

THE arrangement of buildings on a dairy farm will simplify the work or make it difficult, according to the amount of forethought used. The picture shown below was taken on a practical dairy farm which has a creamery building and an ice house.

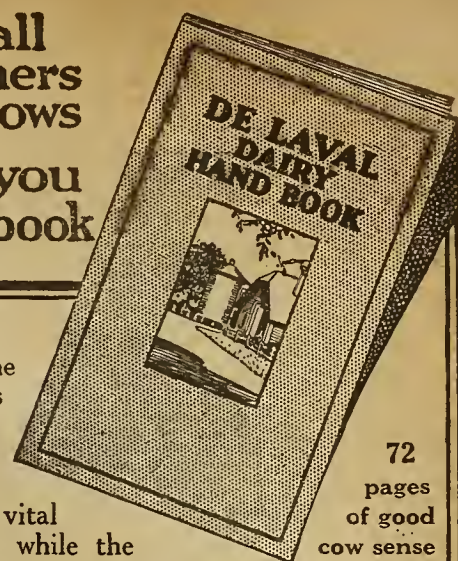
An overhead track connects all buildings so that supplies as well as the milk and cream may be easily handled. The ice house is between the creamery and the barn, which makes ice-handling logical and time-saving.



When planning buildings for the dairy farm, consider every unnecessary step. Arrange especially for the easy handling of milk, feed, manure, and ice

FREE to all owners of cows

If you keep cows you ought to write for this book



72 pages of good cow sense

THIS book was written for the man with only two cows just as much as for the man with twenty. In it has been gathered together a great fund of valuable information on subjects which are of vital interest to every cow owner. And while the various phases of dairying are treated by the best and highest authorities, it is not a technical treatise but is written in plain every-day language so that even the children can understand it.

Here are just a few topics that will give you an idea of the practical nature of its contents:

"How a Dairyman Made Good"—a real story of a real farmer, who, starting with almost nothing, built up a fine dairy herd and made a big success.

"Year Around Feeding of Dairy Cows"—by an authority whose advice is well worth heeding. The importance of proper feeding deserves more attention from every cow owner.

"How to Judge a Dairy Cow"—shows by illustrations what points to look for in a dairy producer—explains the essential qualifications of a good dairy cow.

"Building Up a Dairy Herd"—a practical breeder gives some sound advice on this important subject.

"The Farm That Won't Wear Out"—shows that the farm where cows are kept, and the fertility returned to the soil, improves instead of deteriorates.

"The Care of Cream on the Farm"—quality is as important as quantity. It costs little and brings big returns.

"Silos and Silage"—one of the best chapters in the book. Full of silage facts that every farmer ought to know.

Then there are splendid articles on "Alfalfa," "Ventilation of Dairy Barns," "Breeds of Dairy Cattle," "Improving the Herd with a Good Bull," "Care of Freshening Cows," "How to Test Cows," etc. Numerous dairy rations, suitable for various sections of the country, are given, and various milk and dairy tables as well as tables of weights and measures, silo capacities, etc., that every farmer has occasion, at some time or other, to refer to.

Thousands of dollars have been spent in the preparation of this book, and if you keep cows you certainly ought to write for a copy and read it from cover to cover. The book is absolutely free. Just fill out the coupon or send the information requested on a post card, mentioning this paper.

The De Laval Separator Co., 165 Broadway, New York

Please mail me, postage free, a copy of your New Dairy Handbook. I keep _____ cows. I sell cream, make butter, sell milk (cross out whichever you don't do). The make of my

Separator is _____, used _____ years

Name _____

Town _____ State _____ RFD _____

MINERAL HEAVE COMPOUND In use over 50 years
CURES HEAVES
Booklet Free
\$3 Package guaranteed to give satisfaction or money back. \$1 Package sufficient for ordinary cases.
MINERAL HEAVE REMEDY CO., 425 Fourth Ave., Pittsburg, Pa.

Only \$2 Down One Year to Pay!
\$24 Buys the New Butterfly Jr. No. 2. Light running, easy cleaning, close skimming, durable. Guaranteed a lifetime. Skims 95 quarts per hour. Made also in four larger sizes up to 5 L. 2 shown here.
30 Days' Free Trial Earns its own cost and more by what it saves in cream. Postal brings Free catalog, folder and "direct-from-factory" offer. Buy from the manufacturer and save money.
ALBAUGH-DOVER CO. (12) 2139 Marshall Blvd. CHICAGO No. 67

THICK, SWOLLEN GLANDS that make a horse Wheeze, Roar, have Thick Wind or Choke-down, can be reduced with

ABSORBINE also any Bunch or Swelling. No blister, no hair gone, and horse kept at work. Concentrated—only a few drops required at an application. \$2 per bottle delivered.
Book 3 K free
W. F. YOUNG, P. D. F., 23 Temple St., Springfield, Mass.

95 AMERICAN CREAM Upward
\$15 SEPARATOR
Sent on Trial. Fully Guaranteed. Easy running, easily cleaned. Skins warm or cold milk. Bowl a sanitary marvel. Whether dairy is large or small obtain handsome catalog. Address, Box 5058, AMERICAN SEPARATOR CO., Bainbridge, N.Y.

Raise Your Calves on Blatchford's Calf Meal and Sell the Milk
More calves have been raised on Blatchford's Calf Meal than on all other milk substitutes combined.
100 lbs. makes 100 gallons of milk substitute, costing only one-third as much as milk. Prevents scouring and insures the early maturity of sleek, handsome calves. It is steam-cooked and no trouble to prepare or use.
Write for Pamphlet "How to Raise Calves Cheaply and Successfully with Little or No Milk." At dealers, or Blatchford Calf Meal Factory, Dept. 3, Waukegan, Ill.

HOOSIER Stoves Ranges FREE Heaters
To try in your own home 30 days free, no matter where you live. Show your friends. Send it back at our expense if you do not want to keep it. Hundreds of thousands in daily use. Perfect bakers, efficient heaters, made of high grade material, beautifully finished, smooth design, guaranteed for years by our Two Million Dollar Bond.
Ask your dealer to show you "HOOSIER" Stoves and Ranges. Write for our big free book showing photographs describing large assortment of sizes and designs of cast and steel ranges, cast cooks, soft and hard coal heaters and base burners to select from, explaining our free trial offer. Send postal today. Write name and address plainly. No obligations.
HOOSIER STOVE COMPANY 126 State St. MARION, INDIANA

We guarantee that every subscriber will receive fair treatment from advertisers. It therefore pays you to mention Farm and Fireside in answering advertisements.



SIGNING THE DECLARATION OF INDEPENDENCE—By Dodson

To Merchants and Bankers

If you are interested in the profits to be secured from the greatest nation-wide publicity campaign of a decade, centering upon one business or bank in each town, send the coupon now!

FREE

A LARGE SIZE FULL COLOR PRINT
OF THIS WONDERFUL PAINTING

To the Public

There are no strings attached to this offer. We will see that a business house or bank near you makes this absolute gift. It will take some time to print one for each request, so to make sure of *your* copy, send the coupon at once!

One of the Bravest Dares Ever Given Death

By a Handful of Heroes

THEIR act was a life-forfeit. Each signature was its own death warrant; for when Patrick Henry delivered his immortal apothegm, "Give me liberty or give me death!" he was shouted down with blood-thirsty cries of "*Treason!*"

You should revere this handful of men as godfathers of American Liberty. You should know them all by name. You should know them all by face and figure, for they are our true College of Immortals. Especially is this relighting of our Altar Fires appropriate at present.

Let this painting bring the great American Drama into your home. See this pageant of Patriots step out of the past and enact before your eyes their sacrificial pledge.

Every home and every business enjoying life, liberty and the pursuit of happiness under American institutions, should have this picture framed and prominently displayed.

Even now a copy is being sent to schools throughout the country.

Most Important Historical Event in Five Centuries

Dodson painted this masterpiece. It shows the signing as it really was—a scene of tense dramatic interest, where every man was possibly penning his own death warrant. The world's most noted art critics, as well as such personages as Vice-President Marshall, Speaker Champ Clark, Senator Stone, Senator Borah, Frances Starr and others, pronounce it the most inspiring and most important historical painting ever made.

As publishers of the finest full-color lithographic prints, The Knapp Company is making arrangements with one business house in every town to send a handsome copy of this great painting—free of charge—to every person in that town who asks for it. This is your chance to get on January 1st, without cost, a full-color copy of the picture that in two months is going to be the most-talked-about work of art in this country.

THE KNAPP CO., Inc.

Creators of Direct Appeal Advertising

52 East 19th Street, New York, N. Y.

F.&F.

THE
KNAPP
CO., Inc.
52 E. 19th St.
New York, N. Y.

I am a merchant
(or banker) in the
town of

and I should like full
information about your
publicity plan, exclusive to
one house in each town, as
based on the Dodson Painting.
It is understood that I incur no
obligation of any sort in making
this request.

Name

Address

Business

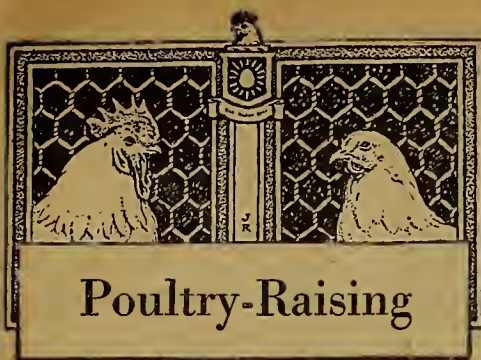
F.&F.

THE
KNAPP
CO., Inc.
52 E. 19th St.
New York, N. Y.

Please send me the
name of the business
house or bank in my
town where I may secure,
free of charge, a full color
copy of the great Dodson Paint-
ing. In the event of there being
no place here where the painting
may be secured, it is understood that
you will send me a copy direct, with-
out obligation on my part and without
charge.

Name

Address



Poultry as Mortgage Lifters

By Edgar L. Vincent

IN THE course of a little journey the other day I fell in with a man who is getting ahead with poultry. He is a farmer, and not very strong physically, but he loves poultry and is making some money out of his birds. He told me about it simply, but with a pleasant look on his face. He also told me of a neighbor who is paying for a little farm out of hens and hen products. He had tried to pay a farm mortgage for a good many years with cows, but now that he has made something of a specialty of poultry he is getting out of debt.

But I did not need to go very far from home to find examples of good success with farm poultry. A number of my neighbors are enlarging their poultry-keeping operations with quite marked success. One of our neighbors brought us a fine incubatorful setting of eggs this last spring for hatching, as he had no machine of his own yet, and we had. They gave him pretty good returns, though quite a few had to be tested out as infertile. He is gradually building up a better and bigger flock, and next year will have an incubator of his own.

A few years ago all we had in the way of poultry on our farm was 25 commonplace hens. Now we have more than ten times as many, and this spring's hatch of chicks numbers nearly 400. These are all pure-breds of good stock.

Go where one may in this part of the country and one finds more hens and more and better poultry houses on many farms.

Of course, it is not true that every farmer who tries to push the poultry business makes a go of it. Not all of us are by nature poultrymen, and I do believe that it is with this as with many other things—one needs to have a natural taste for poultry and patience to learn many things that go with the business. There are drawbacks, but there are also many things to encourage the man who is willing to work and to think for himself.

Profit From Farm Hens

By A. D. Spencer

A NICE little example of pluck and youthful good business judgment came to my attention lately in the experience of a fifteen-year-old Michigan boy, Niles Hagelshaw. Something over a year ago he began with 185 hens and five roosters, representing an investment of \$120. The first year he realized a net profit of \$97.72, in addition to having on hand a stock of young poultry fully equal in value to his original capital.

Young Hagelshaw chose White Leghorns, and in setting eggs picked the eggs of whitest shell and of uniform shape. He set 781 eggs in two incubators and under hens, but after experiencing some trouble with hens and also with one incubator, he succeeded in hatching 420 chicks.

For brooding the chicks, he used hens, as they saved him some trouble in tak-

ing care of the young chicks on range.

In the fall he sold 46 roosters for \$65.43, and up to January 1st he had sold 927 dozen eggs, in addition to a home consumption of 127 dozen eggs. The eggs brought him in a total of \$169. His total receipts, including \$16 worth of old stock sold later, were \$250.96.

The cost of feed for the year was \$103.33, eggs for setting \$13, rent of hen houses \$10, one incubator purchased \$7.57, labor estimated at \$12, and miscellaneous expenses \$7.34, making a total of \$153.24, which left him the profit of \$97.72.

Young Hagelshaw took entire charge of these chickens in addition to his school work and other chores. His year's work with this flock won him the state championship for poultry-raising in the boys' and girls' club work. He is into the same game this year on a larger scale, but he is not yet ready to give out the results of his 1916 experience.

Side-Line Poultry Work

HERE is a hatching record made by Mrs. R. L. Collins, an Ohio poultry-woman, combining the use of a 60-egg size incubator and sitting hens. The incubator was first put into action February 27, 1916, and yielded 27 lusty chicks from the 59 eggs set. During the season, 413 eggs were set, 300 of which were in the incubator, the remainder under hens. From these, 232 strong chicks hatched, or 56 per cent of the eggs set. The Rhode Island Red breeding stock from which the eggs were secured are closely confined the year round.

Besides setting the 413 eggs, Mrs. Collins sold 44 settings of hatching eggs, and supplied fresh eggs for her family of five from her little flock of 32 hens.

Poultry Harvest Buckwheat

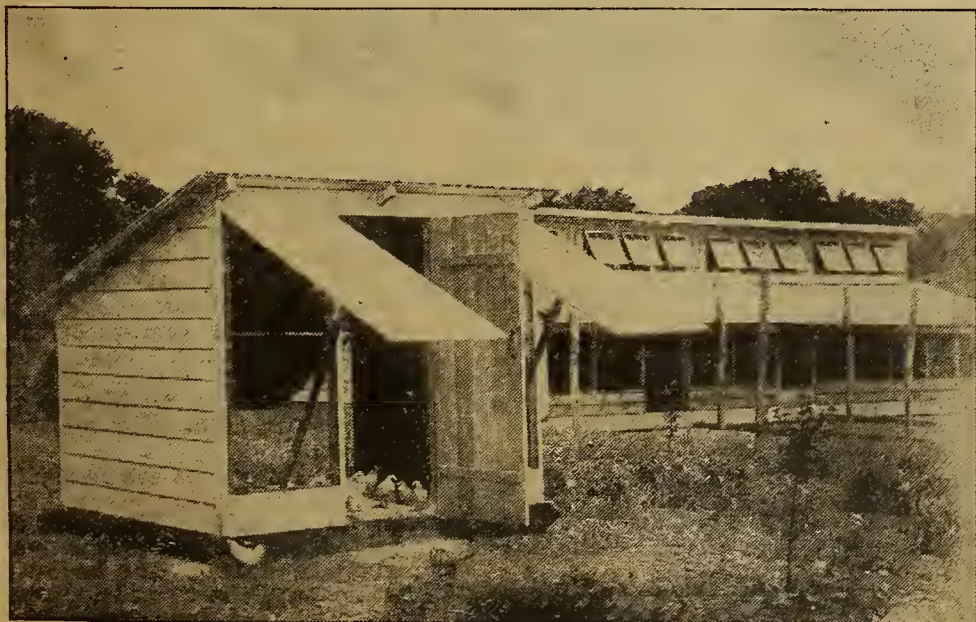
By A. J. Legg

ONE advantage the farmer has over the specialist in the poultry business is that the farm flock can have more or less free range and can thus utilize feed that would otherwise be wasted. I find it often pays to plant crops especially for the chickens to harvest as they want it. They thus get both food and exercise with an opportunity to select food according to their own tastes. For this purpose I find buckwheat an excellent crop. If sown in June it will ripen late in August. If sown in July or early August it will ripen before frost in my section (West Virginia) and will furnish a rich feeding-ground for the poultry throughout the fall.

Last year we sowed nearly three acres of buckwheat on a wheat stubble, turned after harvest, where it was handy for the poultry. We had a flock of nearly 100 hens and pullets besides about twenty guineas. They ranged over the buckwheat, and were in excellent condition when winter set in. The hens continued to lay until late in the fall; then commenced laying again in January. We harvested about one third of the crop and let the chickens do the remainder. Clover and timothy were sown with the buckwheat and the chickens got green clover at any time during the winter when the ground was bare.

Many of our pullets hatched rather late, and of course did not commence laying until spring opened. We wintered 90 hens and pullets. Here is our egg yield for three months after the pullets got to laying: February, 626 eggs; March, 1,090; April, 1,278.

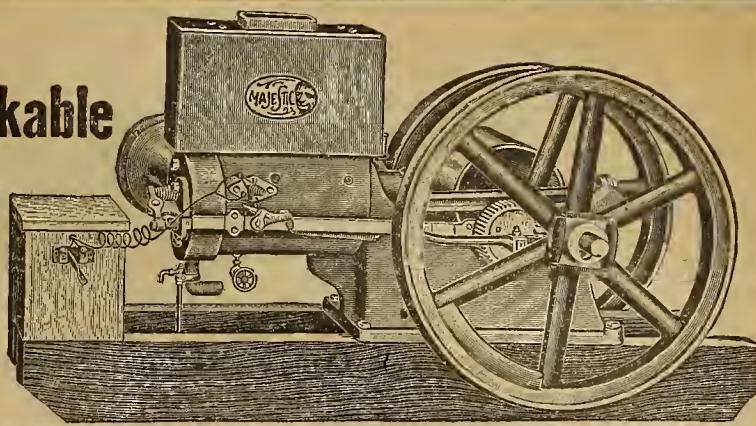
The indications are that they will produce as many eggs in May as they did in April, and on free range and only very moderate feeding.



This colony house has both front and back hinged cloth-covered panels to insure sufficient ventilation at all times

No Money In Advance

Most
Remarkable
Engine
Offer
Ever
Made



A FULL YEAR TO PAY

On Hartman's Special Farm Credit

Only HARTMAN'S, with their \$12,000,000 capital, their tremendous organization, and over two million customers are capable of such a record smashing offer as this. You can order any size or style engine you want—we will send it at once. You pay no money down; make no bank deposit; no C. O. D. We ask for no security. Everything confidential between you and Hartman's. When the engine comes, work it as though it was your own for 30 days, and if you are not fully satisfied with it in every respect—send it back at our expense, and you'll not be out one cent. If you are completely convinced that the "Majestic" is a wonderful bargain and just exactly the engine you've been waiting for, then keep it and pay us one-tenth in 30 days; or one-sixth in 60 days, giving you 10 months or a full year to pay, whichever you prefer. These liberal terms apply to all sizes and styles of

The Great Majestic Engines

Sizes 2, 3, 5, 7, 9 and 14 H-P.

STATIONARY, HAND PORTABLE, HORSE PORTABLE

Send coupon for FREE Book and learn just what size and style is best for your requirements. Note the sensationally low bargain price put on each engine. You wouldn't believe it possible that such a high-grade engine could be sold for so little. But Hartman does it. And you are not asked to pay a cent in advance or keep the engine if you don't think it the most wonderful bargain ever offered.

The Majestic is the simplest, most durable, most powerful for its H-P. rating and most economical-to-operate gasoline engine. Not a bit like old style, over-heavy types of gasoline engines which consume enormous amounts of fuel and are, therefore expensive to operate; or like others, that are so light they literally jerk and tear themselves to pieces when running at high speed or under a heavy load.

The Majestic is the "happy medium"—neither too heavy nor too light. Has fewer number of parts—a marvel of simplicity. Perfectly balanced—just the right weight for the power it is designed to develop—no excessive friction. Has big improvements in all vital points. Convenient, compact. Gives good, efficient service without tinker or bother.

Mail Coupon for Free Book



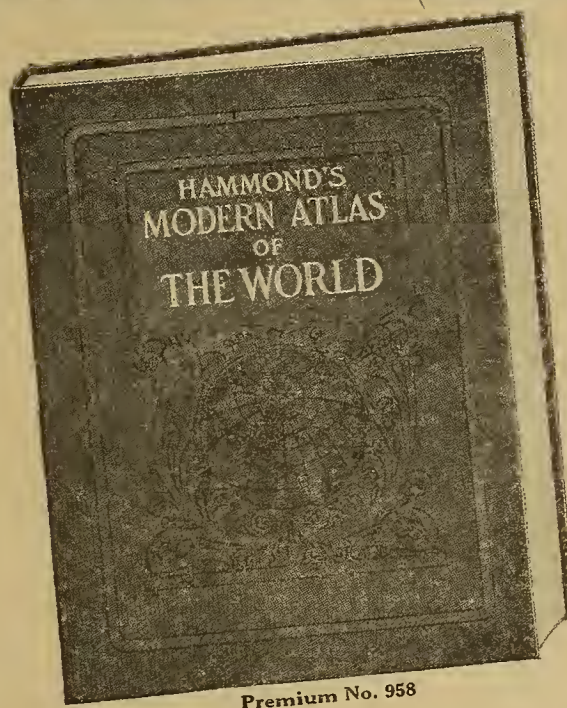
The most valuable engine book ever published. Tells about the wonderful Majestic, how made, and why it is the biggest engine value. Tells how to pick out size and style engine best suited to your needs, and explains the famous farm credit plan. Mail coupon or postal.

THE HARTMAN COMPANY
4039-41 LaSalle St., Chicago

Mail Coupon NOW

THE HARTMAN Co., 4039-41 LaSalle St., Chicago
Without obligating me, send your Engine Catalog No. E-254 and particulars of Farm Credit plan.

Name.....
Address.....
P. O. Box.....
or R. F. D.....
Town.....State.....



Premium No. 958

You Need This Atlas

Civilization is being rocked to its foundations by the tremendous events transpiring abroad.

Our New Modern Atlas of the World is needed in every American home. It contains many new and attractive features and is of especial interest at this time on account of the presence of thousands of U. S. troops in Mexico and on her borders. You can see just where the boys are with this atlas.

A SPLENDID BIG, HANDSOME BOOK

Nearly two hundred pages—size 10¼ x 13½ inches. Superbly illustrated and bound. It should have a place in YOUR home

Do not confuse this book with the so-called "Handy" Atlases. This is a big, handsome book, cloth bound, and contains maps in five colors of every country on earth, 128 pages of them, every State in the Union, the Canadian Provinces, the countries involved in the great World War, Mexico, showing the United States border; together with population gazetteers for the United States and the world. In short, the book is brim full of just the kind of information you want—to-day, to-morrow, every day. You need this book for yourself; you need it for your children. We advise you to take advantage of this splendid opportunity. Send your order now.

How You Can Get YOUR Copy

Simply clip the coupon to the right, fill in your name and address, enclose with \$1.00 cash, check or money order and we will send you a copy of the atlas all charges prepaid and also send FARM AND FIRESIDE for one year (old subscriptions extended). This offer positively expires in 30 days. Address

Farm and Fireside, Springfield, O.

USE THIS FORM TO SEND YOUR ORDER
FARM AND FIRESIDE, Springfield, Ohio
Gentlemen: Find herewith \$1.00 for which send me charges paid) one copy of the New Modern Atlas and also extend (enter) my subscription to FARM AND FIRESIDE for one year.
Name.....
P. O. Box.....
R. F. D. or Street.....
State.....
E. 92

Read this story of love and neighborly kindness and an accident on the desert. There's a smile or a throb in every line of it

The Bossets Visit

They Empty the Pantry, but Their Hearts are Right

By MELCENA BURNS DENNY

Illustrated by DeAlton Valentine

SYLVIA sat up softly, so she would not wake her sister. This was the day her husband was to come, and the creak of a wagon had startled her from sleep. With a selfishness of joy she had told nobody but Hester and baby Dean—the Pancake neighbors were inquisitive as children. On the night stage John would come! He had been away six weeks.

"Good morning," said her sister's sleepy voice.

Sylvia Barry lay down and closed her eyes. "Don't wake up. It isn't five." But her sister was filled with curiosity, for it was the first morning of her visit. Sylvia watched her furtively. The sun poured through the flowered curtains, and outside lay the desert. As a wife, Sylvia was proud of its ugliness, proud of its dead, hard face, for in another year John, with his reservoirs and splendid water ditches, would make it green as a garden. Hester lifted the curtain and peeped out, and Sylvia's heart bounded at her exclamation.

"What desolation!"

"Yes. It's the Pancake."

"I see; because it's flat, and brown, and baked through. And to think that John spent his boyhood here! That those queer things I heard talk last night were neighbors!"

"Yes. Everyone calls him John here. They can't understand how big his undertaking is, and how it will profit them. They think he wants to raise vegetables on the old place." Sylvia's eyes were twinkling.

Hester fell to laughing. A soft, gurgling laugh joined hers, and four-year-old Dean rose in his crib. "Papa's coming!" he announced.

"No, not till to-night, Dean," said Sylvia.

"I hear him now!"

"No, you hear neighbors going to town. See." She pointed along the bleached thread of road to an object half folded in ashy clouds. It crept, with a creak of axles. "It must be the Bosset wagon."

"Papa will come faster."

"Of course he will. Think of how we'll hug him. Think of the things we are saving for him to eat."

The child was solemn with joy. Then he sat up with a braggart smile. "I had one cooky!" he announced.

SYLVIA buried her face in the little boaster's fleecy curls. "My precious starveling! But when Papa comes we'll eat the rest. You have no idea, Hester, what a pan of cookies stands for here. I've saved and planned for a week. When John has finished his ditches and brought in water from the mountains, everybody can have cookies. That's the thought that has kept me up. Then there'll be green feed, and domesticated cows, and butter, and cream, and the hens will lay. Another secret is bursting Dean's heart—there is a big cream pie bearing the cookies company."

"Glorious!" exclaimed Hester with enthusiasm. "Now if we can only keep our fingers out of that cupboard till ten to-night—"

A loud call from outside cut into her speech. For a minute the little group did not move, for the expression on Sylvia's face warned the others to be silent. Then she cautiously leaned over and applied her eye to the knot hole.

"It is Mr. Bosset, Mrs. Bosset, and seven children!" she whispered in dismay. "Oh, Hester, now you'll know what neighborliness is!"

"What do they want?"

"They want to visit me!"

The hunted look in Sylvia's eyes convinced Hester that her speech was not meant for a joke. Hester sought and found a crack, and quakingly met the assault of eighteen sharp and knowing eyes, even the babe in arms seeming to join its elders in intelligent scrutiny.

"Maybe if we don't breathe they'll think we're dead, and go away," Sylvia seemed to say with her troubled eyes. But a boy descended and scampered around the house.

"What now?"

"A skirmish to see if there's smoke."

Hester stifled a titter. The sisters drew back and giggled like schoolgirls, until a heavy step made the porch creak. Mrs. Bosset herself!

"She can knock till doomsday," muttered Sylvia with a flaming face. "I won't go down!" But the Bossets were unhitching. The knock sounded louder.

"I'm not dressed, Mrs. Bosset!" cried Sylvia hysterically mirthful. Her laugh was answered generously.

"Jest take yer time, Mis' Barry. I was most sure we'd ketch ye."

The sisters had forgotten Dean. As the young mother flew into her garments she saw that his eyes were big and foreboding. "Mama, is they going to eat Papa's cream pie all up, every teeny weeny bit?"

"Why, no, darling. Listen! We won't speak of cream pies to-day. It wouldn't be polite." An ironical smile flickered a moment and dropped back again into depths of anxiousness. "Promise, Dean! Not a word of pies!"

"I promise," he piped. But he still hugged his knees. "Will they eat up *all* the cookies?"

Sylvia cast a shamed look at her sister, but thrust in her hairpins with jerky decision. "No; we'll save them, for they are Papa's, too. I wrote to him I might make some if the hens laid. So we won't mention cookies either."

"I PROMISE," pledged Dean again. Then his eyes popped out, his head wagged. "I had one cooky!" he bragged with swelling pride.

"Are they through unhitching, Hester?"

"We are seven," quoth Hester sententiously, and took up Dean to dress him. Sylvia ran down-stairs. Mrs. Bosset's fat face beamed as she marshaled in her tribe.

"I told Bosset we'd ketch ye. But Bosset was goin' to Bemis to-day, an' we set up last night an' see that your sister was on the stage, so we came along to have a good day visitin'. You don't say she ain't up, either?"

"She's dressing. Do sit down." Sylvia hunted chairs, and in the meantime Mrs. Bosset kept up an elated monologue.

"I always git 'em up at four in summer, an' when I go avisitin' I jest let the beds and dishes set. I always think to-morrow's comin', an' if it ain't, what's the use worryin', anyhow? I can't git my consent to start out visitin' unless I can start out easy. If I was like you I wouldn't be a mite better'n you be—not a mite. I'd lay abed till seven too. It ain't so shiftless if there ain't a whole fam'ly to lay abed too. Poor little stick-in-the-mud! This baby's hungry. If you'd jest het up some milk—"

Sylvia saw her empty pans, remembered the cream pie, and seized a pail.

"If you'll excuse me just a few minutes I'll milk the cow."

"Now, don't bother to go an' milk. Last night's'll do as well, provided it's het. My babies is all bottle babies, but I ain't like some women. I never give 'em milk unless it's het. I guess that's yer sister comin' now, or is she yer half-sister? Somebody says yer ma was married twict."

"My half-sister, really, but— Oh, Hester, this is

my neighbor, Mrs. Bosset, and these are her children. Will you excuse me now?"

She flew on her errand for the wailing baby. When she returned the young Bossets were still sitting, watchful, silent, motionless, the mother was still talking. Sylvia glanced over the young, bold faces with a pang, and quick on the pang came the thought of breakfast.

"How famished you must be if you got up at four," she cried. "Hester, do you think you and Dean could set the table? He knows where things are."

"Of course. Has Mr. Bosset gone? That leaves eleven, counting the baby."

"I never count the baby till it's shortened," commented Mrs. Bosset calmly. "We had a snack before we started, but that ham does smell good on an empty stomach. Ham an' pancakes is a favorite with my children. Pshaw, you ain't mixin' 'em jest because I said the word, are ye? Well, we do jest naturally like 'em, an' no mistake."

Sylvia was sure of it before she was permitted to push back the smoking griddle. Twice the grease caught fire, and once she spattered batter all over her dress. Hester, coming with a cloth, held off and laughed.

"Sylvia, there's a working model frying on your face. Do let me turn it over. I'm sure it is browned." The scarlet hostess seized the cloth and a Bosset snickered.

"Billy an' Jim, where is yer table manners?" demanded Mrs. Bosset. "Quit gawkin' at Mis' Barry an' go on eatin'."

"I'm full," said Billy resentfully.

"So'm I," echoed Jim with a combative look.

"What, all done?" cried Sylvia. "Then, Dean, find your football. You can have a splendid game."

WITH the children outside, Sylvia's color gradually retreated. Mrs. Bosset finished her own breakfast with calm enjoyment. By ten the house was in order, and the sisters were cutting carpet rags with their visitor. Sylvia worked with secret elation, saying no word of her husband's coming. By eleven the children began to come to the kitchen door and look in.

If Sylvia glanced at them they fled. Occasionally one scampered through with swift looks to right and left. These incursions reminded Sylvia of the swoopings of hungry hawks, and she suddenly saw the purpose and began getting dinner. When she called them to sit down she found them tamed enough to talk, and the change was alarming. Their abrupt, snatching ways imperiled her china, and her silver was used to point with. "Pass the butter!" "Gimme piece o' bread!" "Gimme s'more jelly cake!" kept the air vocal. Butter, bread, meat, potatoes, peaches, and jelly cake melted away before them like forms of mist. Mrs. Bosset had let it drop that Mr. Bosset would not return from the store until late. Would they linger for yet further orgies? Sylvia looked upon her depleted larder. The situation was turning from farcical to tragic. She worked at the dishes in deep thought. But John was coming! John was on his way!

The afternoon heat simmered in the air, blurring the road to Bemis as would a pane of defective glass. Sylvia sat where she could watch the chalk-like line, while carpet rags lengthened under her anxious hands. The cries of the Bosset children sounded far off in the sagebrush, but as the sun began to cast longer shadows they drew nearer in their play. Presently they started making trips through the kitchen again. They always went through, or seemed to, at a gallop, and never stopped until the sagebrush hid them. Sylvia grew curious, then nervous and disturbed. At last she ventured a question.

"Oh, they has their games," explained Mrs. Bosset easily. "As long as they're from underfoot I don't worry none. Land sakes, how this baby drools! I'll jest take him in an' lay him on the sofy, 'stead of danglin' him over my arm."

"The little imps are reminding me they're hungry again," said Sylvia hurriedly. "Hand me the field glass. Isn't Mr. Bosset anywhere in sight?" The landscape was empty. She turned and swept the road that John would come. After all, what did it matter? A few hours, and then, what joy!

EW



"Land sakes, he ain't so bad hurt, honey. Horse accidents ain't often what you'd call bad"



Children's Corner

Who Called Mary?

By Anna C. Chamberlain

LITTLE Mary set her pail down beside the row of peas and looked about her, her round face drawn into cross lines which made her look as sour as a little pickle.

"An' I didn't want to pick peas to-day; so there!" she grumbled to herself, adding another pucker to the wrinkles on her little forehead.

It was very bright and sunny in the garden and the birds sang in the orchard trees while the crickets chirped encouragingly in the grass beneath, but little Mary was not thinking of these. She saw only that the row of peas seemed most a mile long, and the tin pail she had brought to fill with peas looked to her unwilling eyes almost as deep as a cistern.

"I don't want to pick peas," whined Mary again to herself, looking down at this great pail which, by the way, was only Robert's school-lunch pail. "I want to do something dif'rent. I believe I'll pick some flowers for Mama instead."

"Mama said if I wanted to help her I should pick some peas," said Mary, excusing herself for leaving her work. "Maybe she'll be just as pleased with the clovers." But she knew quite well that her papa could not eat clovers for dinner, and she had to hurry very fast down the long row of peas and through the gate into the orchard to keep from hearing the small voice within which told her it was wrong to run away from her work.

"Mama will be so pleased with the flowers!" she kept saying to herself to hush this little voice as she walked



"Mary, Mary, come here! Come here!" someone called shrilly

quickly along between the trees looking for the place where the clover blooms were biggest and reddest.

And then a very curious thing happened. Just as she reached a place in the thick clover where the heavy heads nodded drowsily to the sound of the droning bees someone called shrilly:

"Mary, Mary, come here! Come here!"

"Yes'm," said Mary, dropping the blossoms she had just gathered and running toward the road, for the voice was very loud and insistent.

"Mary, Mary," cried the voice again, still from the direction of the highway; but though the little girl looked through the fence both up and down the road no one was in sight.

"Come here! Come here! Quick, quick!" This time the voice came from up toward the garden.

"Yes'm," said Mary again, timidly, for the voice was strange and unlike any she had ever heard before. "I'm Mary. Did you want me?" But no one was in sight, though she was now by the garden gate whence the last call had come.

"Mary, Mary, come here! Come here!" It came right from the row of peas this time, and the bewildered little girl hurried over to where she had set down her pail a short time before. Could it be a fairy calling her back to the work from which she had run away?

No little green-clad man or woman stood there, but a bird, hopping up and down among the vines. Over his back

EW

and head he wore a black coat and hood and along his sides and breast were trimmings of chestnut-brown.

"Quick, Mary, come here! Come here!" said the bird, turning his head from side to side as he peered among the leaves and then—Mary could hardly believe her eyes—he picked one of the pods she had been sent to gather.

"Yes'm, I was just coming," said Mary meekly, ashamed to see that a little bird was trying to do her neglected work.

"Mary, Mary," said the bird again, hopping a little farther along, and this time it seemed to the little girl that his voice was not so shrill as before. Perhaps this was because she had come back to her work, for she was picking busily now and the bird did not say any more for a while except to utter a gentle, "Quick, quick!" now and then.

It was no longer lonely in the garden, and the tin pail filled rapidly as Mary worked, the bird sometimes gathering



"Don't you like my new hat, Mr. Bug?"
"Yes, my dear; but why hide your light under a bushel?"

one as if to help; but it must be told of him that he kept all those he picked for himself.

At last the pail was quite full and heaped up, and then the little girl started to carry them in to be shelled for dinner.

"Mary, Mary, come here! Come here!" called the bird suddenly as she went out through the little gate.

"I will, to-morrow," said Mary as she hurried toward the house eager to tell her mother of the wonderful bird who had called her back to her work.

"He said 'Mary, Mary, come here! Come here!' just as plain," said Mary, her eyes shining with excitement.

"It was an orchard oriole," said Mama, smiling down at her little girl, "and 'Mary, Mary, come here! Come here!' is one of his little songs."

After dinner Mama showed her a picture of the pretty black and brown bird with his little yellow mate and of the basket-like nest which he builds for his bird babies up in the orchard trees.

New Puzzles

A Rhyming Rebus

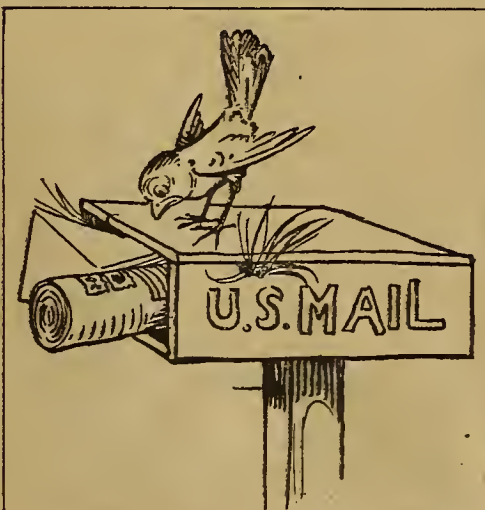
At first I'm advanced for interest or pelf;
Behold, and you'll find I've a place on the shelf;
But behold me again, and perform it with care,
If you handle me now, you have need to beware.

Answers to Puzzles

Puzzles Printed Last Issue

Concealed Geography

The cities are Deal, Troy, Witham, Esk, Perth, Baden, and Arden.



"Somebody has nerve putting his waste paper right in my front door!"

MOTHER

Never Had Your Advantages

Wash day to her meant hard, grinding labor over the board and tub. Today the laundry problem is humanely—satisfactorily—economically solved, by equipping the home with a

Maytag

Multi-Motor Washer

Swinging Reversible Wringer

It is not only a wonderfully good washer, but possesses original labor-saving features that appeal to good housekeepers instantly.

So Simple—So Safe

Its splendid little engine is ever ready to do a host of other trying household tasks. It will run the churn, food chopper, bone grinder, ice cream freezer, in fact, do all the work that a machine should do.

Operates on gas or gasoline. Just a touch of the foot starts this ideal servant at its work.

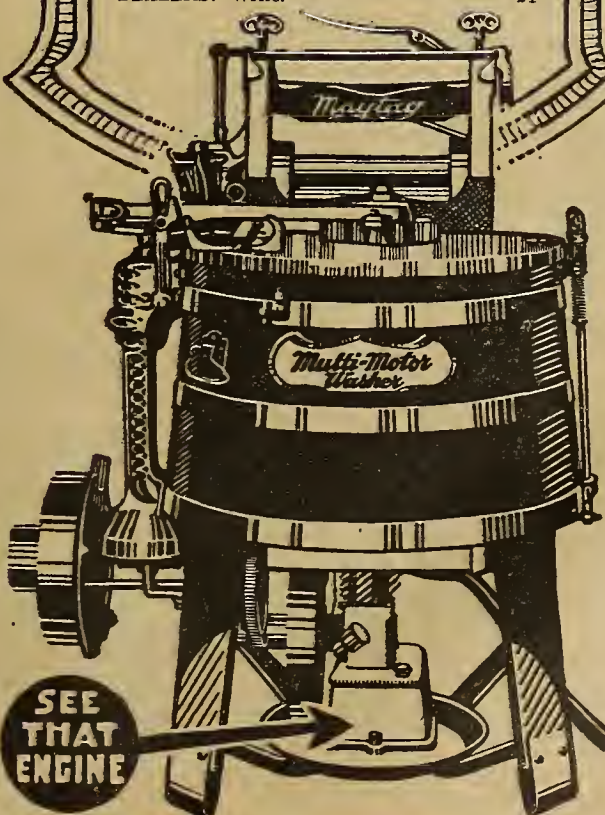
Sold under a positive three year guarantee.

FREE: "The Maytag Laundry Manual" is of value to every housewife. Contains expert launders' valuable secrets on washing all fabrics. Tells about this new and wonderful Maytag. A copy is yours with our compliments—write for it today.

THE MAYTAG COMPANY
Dept. 72 NEWTON, IOWA

Branches and Warehouses in Most Principal Cities.

There is a Maytag Washer of every type—hand—power driven—electric—all built to the enviable Maytag Standard
DEALERS: Write!



SEE THAT ENGINE

Making Housework Easier

When School Districts Hold Cooking and Sewing Courses

By C. M. LONG



They studied new methods of canning fruits and vegetables on Thursdays

A COUNTY agent walked into the office of the dean of agriculture of the University of Missouri at Columbia three years ago. He asked the dean if two teachers of home economics could be sent to Johnson County to conduct cooking and sewing schools in the county schools for six weeks.

The request was granted. The University of Missouri paid the expenses of the girls the first year, so the persons of the county would not have to bear the expense of an experiment.

The plan outlined by the county agent called for a school of one week's duration in twelve school districts. Sessions of the schools were held in the schoolhouses during the afternoons. The time of the two teachers was spent in the homes of the districts in the mornings and in the evenings.

The schools were planned for the girls of the districts, but the teachers were instructed to make the school work so practical that the grown women could not stay away. Did they succeed? They did, and to such an extent that the girls were nearly crowded out. These busy farm wives had to do all their own work, but the attendance daily averaged from 25 to 50 women. One woman walked two miles and a half every day to learn the new methods. Several women and girls drove five miles in the dust and heat to attend the sessions of the schools. Some came after the thresher hands had been given their dinner.

Three Generations Attend

A WOMAN more than eighty years old and her sixteen children and grandchildren were among the students of one of the Missouri cooking and sewing schools. One woman had refused to take the teacher for an evening. Her husband was opposed to the farm bureau anyway. At the close of the session the first afternoon she went to the chairman and tried to get an evening with the teacher, saying, "Why, she is just like the rest of us." While in the homes these teachers, both of whom were young women just out of college, surprised these practical folks by the many practical things they could do. In one place the hostess had some unexpected company and the teacher made the cake for her. One man said, "Any girl that can make hot rolls like that girl, can have a home at our house as long as she wants it."

These were strenuous days for the instructors. The sessions at the schoolhouses were to continue from 2 to 4 P. M., but the teachers seldom finished the work at the schoolhouses before 6 P. M. Then there were so many things that the hostess wanted instruction in. The mornings were often spent with the girls in candy-making or something of special interest to them.

Here is an outline of the courses given:

Monday, bread-making; Tuesday, pastry; Wednesday, cooking of meats and vegetables; Thursday, fruit and vegetables, home canning; Friday, sewing; Saturday, review on any points asked.

Johnson County had eleven such schools last year, at an average cost of \$27.50. Every community paid for its own school. Forty-five such schools were held in Missouri in eight counties, and were attended by a total of 3,034 women and girls.

The program of the Johnson County home economics schools was slightly changed last year. Two night sessions, to which the whole family was invited, were held. At the midweek session the instructor talked on home sanitation, and a local physician discussed "Cause, Prevention and Cure of Infectious and Contagious Diseases."

The evening of the last day was often conducted as a social, where ice cream, cake, and other things the young folks had learned to make were sold to defray expenses. Sometimes it did that and left money in the treasury for next year. In some places local organizations financed the schools. Sometimes those in attendance merely assessed themselves enough to pay the cost. In one case the school board voted to pay the expense out of the incidental funds.

The work has proved so popular that the State of Missouri has offered to pay \$12.50 toward every school held in Missouri.

"The school of home economics has been a great blessing and inspiration to us," said one of the women who attended the 1913 and 1914 county cooking and sewing schools when asked what she thought of them. "It has helped and encouraged us in our efforts to make the daily work in the home of fascinating interest instead of monotonous labor, and to make housekeeping an inspiring profession instead of deadening drudgery. It has helped us to think of cooking as a science and home-making as an art."

"In three cases three generations were in attendance, and the grandmothers enjoyed the lessons with the grandchildren, only regretting that they could not have attended such schools when they were young," said another.

"The school has helped our community in many ways," asserts a third woman who attended the sessions. It has instilled a desire to have this as a part of our regular school work and to make an annual affair of the school for the older folks. Also a desire for building to accommodate these community meetings."

A woman from one of the schools writes: "It would be difficult indeed for just one person to give an estimate of the good accomplished by the school of home economics just held here. We know from the large number in attendance each day, and the great interest manifested by each and every one who attended, and by the excellent co-operation of many who attended in the work we attempted to do, that much interest has been aroused in this community. Many have learned the 'why' of so many things we do in home-making from a different viewpoint from that which they have in the past, and feel that home-making is a pleasure and a profession."



Grown women came in such numbers that the girls were nearly crowded out. Several women and their daughters drove miles to attend the meetings

One of the best results which has come from the teaching of home economics in country communities is the introduction of improved equipment in the home. Many women who had used primitive tools and utensils for years because they did not realize the saving in labor and time that up-to-date equipment would mean, have lessened their work by a third since their kitchens were furnished with a few of the new devices.

A fireless cooker or an oil stove, which some of the women have regarded as impractical or involving new processes that would be hard to learn, proves its practicality in an hour's demonstration, and the hard-working housewife goes home with the determination to possess one. Many a ten-cent device, too,—lemon squeezer, potato ricer, flour sifter, or cherry pitter—that makes play of irksome small tasks has come into country kitchens through the cooking schools.

The Stutterer

How to Cure Impediment of Speech

By JOHN T. TIMMONS

AT VARIOUS times in the history of civilization some supposed wizard or magician has performed some remarkable feats in the apparent curing of some terrible stutterers who could scarcely make themselves understood by other folks, and the people marveled at the wonders of those able to cast out whatever was supposed to cause the affliction.

The fact is the very disagreeable difficulty of speech known as stuttering can be remedied in a very simple manner, with no pain, no expense or trip to a hospital for expert treatment, or without anyone's knowing that you who have the affliction are even trying to correct the trouble.

The secret of the difficulty lies in the inability to control the vocal organs. The nerves and vocal cords will not act in accordance with the mind, and the will power cannot hold them in check.

What is needed is control. Control can be gained perfectly after a little practice, simply by holding a marble in the mouth, sometimes under the tongue, and sometimes at one side of the mouth, and at others directly over the tongue.

If a stuttering person holds the marble in the mouth the attention is so close that the words are formed and uttered so carefully and methodically that the result is there is little or no hesitation and stuttering, and in time the party is so corrected that it is not necessary to hold the marble in the mouth at all.

Candy marbles which are pure sugar, and which are so hard they melt slowly, are the best to use, so if the marble should be accidentally swallowed no harm to the internal organs would result.

Game-Bird Regulation

By JUDSON C. WELLIVER

SOME new bird regulations took effect August 15th, and hunters ought to know all about them. In detail, they are too extensive to be printed here, but the U. S. Department of Agriculture will forward them on request.

Under these rules a closed season is declared for two years on a number of varieties of game birds, all over the country. Shore birds and water fowl in general are to be protected more rigorously than ever before, and hunters who get mixed up with the rules will be in real trouble, for the federal authorities are getting ready to do some real business under this law. There is no doubt of the importance of saving the bird life of the country—some kinds, at least. Saving a crop is worth a lot more than the bird's little carcass.

How to Dress the Children

Keep Their Clothes Up-to-Date, but Simple

By GRACE MARGARET GOULD



No. 2960



No. 3101



No. 3071
No. 3072



No. 2999



No. 3102



No. 2934



No. 2960



No. 3101

No. 3101—Girl's Panel Dress with Applied Overblouse. 8 to 12 years. Material for 10 years, two and three-eighths yards of thirty-six-inch, with one-half yard thirty-six-inch contrasting. Pattern, ten cents



No. 2934

No. 2960—Long Coat with Shoulder Capes. 4 to 10 years. Quantity of material required for 6 years, one and three-fourths yards of fifty-four-inch. The price of this pattern is ten cents

No. 2934—Double-Breasted Coat with Belted Back. 2 to 8 years. Quantity of material required for 6 years, two and three-eighths yards of thirty-six-inch. The price of this double-breasted coat pattern is ten cents

THE children to-day are surely following in the fashion footsteps of their elders. Whatever is the trend of the new modes for grown-ups, it is easily to be traced in clothes for little folks.

In fitting out the children for fall and winter, I believe very strongly in making their clothes up-to-date, using materials and employing colors that are in style to-day, and introducing any new smart trimming touches.

On the other hand, don't make one new frock for your little daughter, or one suit for your small boy, that has a suggestion of fussiness about it. If the lines are right, the plainer children's clothes are the better they are.

Among the materials that are favored for children's dresses are the old standbys of serge and gabardine, as well as a new alpaca called St. Nicholas cloth. This is a very supple fabric that comes in many charming colors and stripes, and has enough warmth to make it desirable for winter wear. Velour and broadcloth, corduroy and velvet, will be used for best dresses, and many soft woollens in stripes and plaids.

Braid, buttons, and machine-stitching, as well as gay ribbons, are used for trimmings.

Taffetas in Roman stripes, checks, and plaids are used in combination with plain materials, and plush and imitation fur fabrics are particularly in demand, not only for entire coats but as a trimming for coats as well as dresses.

In colors, tête-de-nègre brown, any of the shades of blue, dark green, and Burgundy are favored. The majority of the new dresses for little girls introduce a flare in the skirt. Both long-waisted and short-waisted styles are favored, and many of the dresses show a combination of fabrics.

It is the little detail that counts for so much in these dresses. For instance, in the coat for a small girl shown in pattern No. 2960, illustrated on this page, it is the rows of machine-stitching in a bright color that gives the coat a little different look. Collars for coats are in many shapes, the sailor, draped, cape, and military all being considered good style this season. This particular little garment shows a double collar in cape form. Each collar is finished in a smart tailored style by rows of machine-stitching in a bright color. Machine-stitching is also used as a finish for the cuffs, and designates the waistline, taking the place of a belt. The coat itself is dark brown gabardine. The buttons are brown bone, though green bone buttons may be used if preferred.

Very gay satin and silk linings are used for coats this year. Some show Roman stripes, others bright plaids, and still others a plain background scattered with flowers or butterflies.



The new pattern catalogue which is sent free with every pattern order during September and October

No. 3071—Boy's Shirt with Detachable Collar. 12 to 16 years. Pattern, ten cents

No. 3072—Boy's Bloomer Trousers. 6 to 14 years. Pattern, ten cents

No. 3102—Child's Dress with Plaited Belt and Patch Pockets. 4 to 10 years. Material for 6 years, two and three-eighths yards of thirty-six-inch, with three-eighths yard contrasting. Pattern, ten cents

No. 2999—Girl's Dress: Overblouse and Plaited Skirt. 6 to 10 years. Material for 8 years, one and one-half yards thirty-six-inch; two and one-fourth yards thirty-six-inch for skirt, collar, cuffs, and piping; three-fourths yard for underwaist. Pattern, ten cents

A novel dress for school wear is the one pictured in pattern No. 3101. This by the use of the panel gives a good long line in front, and is specially desirable for the stout little girl. It is also an extremely good model to use for a dress made of two fabrics. A very odd feature of this dress is the girdle introduced at the sides, which at the back is extended to give an overblouse effect. A soft plaid wool fabric combined with a plain material, such as broadcloth, would look well for this dress, keeping the plain materials for the panel and girdle. The collar and cuffs should be white or in a light ecru shade.

Many school dresses that are seen in the shops this autumn for both girls and boys have detachable collars and cuffs, sometimes of linen and sometimes of piqué. These are fastened to the garment with pearl buttons.

Wash blouses of piqué, cotton gabardine, and cotton poplin are much used worn with cloth skirts. Plaited skirts for this purpose are most liked. In pattern No. 2999 the skirt is box-plaited, but many of these skirts are kilted. In this special design the skirt is mounted on an underwaist and the blouse worn over it. Many combinations of materials may be used for this dress. For instance, the blouse, with its turned-up trimming strap, may be of taffeta decorated with narrow rows of braid, and the skirt may be a striped material or a plaid. On the other hand, the skirt may be of dark blue gabardine and the blouse fine white piqué trimmed with machine-stitching in dark blue.

The very simple dress shown in pattern No. 3102 is quite as appropriate for the best wear as for everyday school use. It all depends upon the fabric in which it is developed. It is a one-piece dress with full sleeves and plaited belt. Made of velour with fine white embroidery for collars and cuffs and the belt of fur—say, moleskin—it would make a particularly good-style dress for Sunday wear. In any wash fabric or in serge or gabardine it would be stylish for school wear, with collars and cuffs of ecru crash and the belt of the self-fabric.

Clothes for small boys vary little from season to season. This year they are built on more mannish lines than ever before. Bloomers and straight trousers are equally favored. Double-breasted coats are good style made of sturdy worsteds or chinchilla cloth. For small boys, coats trimmed with plush and fur are specially liked.

A good-looking suit, smart in style, is shown in pattern No. 3056. It has straight trousers, a yoked coat made in Russian effect, and a belt that is inserted through applied oblong trimming pieces.

Belts of the self-fabric and belts of patent leather are equally liked for boys' suits.

SPECIAL

Would You Accept This 30 Day Offer?

Thin Model

17 Jewel



Standard of the World. Endorsed by Government and Railway Officials. Harris Goar's enlarged easy credit plan enables you to own this superb Elgin Watch now.

17-JEWEL \$12.50 ELGIN

Now, during this Special Sale, is the time to save a third to a half on this high-grade Elgin. Thoroughly factory tested, guaranteed 25 years, engraved or plain polished case, with your own monogram, and our advertising offer is to send you this fine 17-Jewel Elgin at this ridiculously low price, free of charge for your inspection and approval and if you want to keep it, you pay the small, easy terms of

No Money \$2 — A — DOWN 2 Month

We do this because we want to prove to you that the great volume of our business actually enables us to do better by you than any other watch or diamond house in the world and that on this particular watch, we save you nearly half, for it sells regularly at \$20.00 to \$22.00.

We Don't Want You To Send One Cent—Not a penny. Merely give us your full name and address that we may send you this superb 17-Jewel Elgin on approval. And if, after you have worn it 30 days free, you don't want to keep it, send it back at our expense. You assume no risk whatever. You do not buy or pay one cent until we have placed the watch right in your own hands for your own decision. We want no security, no interest, no red tape—just common honesty among men.

3 Fine Books FREE!

MR. HARRIS wants to send you his three latest BOOKS, FREE — one, "FACTS vs BUNG," or all about the watch business, both at home and abroad; the other, the story of "THE DIAMOND," its discovery, when and how mined, cut and marketed; also our Big Free Illustrated WATCH AND DIAMOND BOOK. Write today—Do it now!

HARRIS-GOAR CO. Dept. 2010 KANSAS CITY, MO. The House that Sells More Elgin Watches than Any Other Firm in the World.

WE WILL PAY YOU \$120.00 for congenial work in your own community. 60 days or less. Man or woman. No capital required. Opportunity for promotion. Spare time may be used. Full particulars free. International Press, 334 Winston Bldg., Philadelphia

LEPAGE'S GLUE 10¢ BEST BY EVERY TEST

AGENTS: \$40 A WEEK

Wonderful New Hosiery Proposition Guaranteed ONE YEAR

12 months or replaced free. Agents having wonderful success. H. W. Price sold 60 boxes in 12 hours. Mrs. Fields 109 pairs on one street. G. W. Noble made \$35 in one day. Sworn proof. Sold only through agents. Not for sale in stores. A hosiery proposition that beats them all. Your territory still open. Write quick for terms and free samples. THOMAS HOSIERY COMPANY 146 Elk St. Dayton, Ohio



AGENTS Wagon or Auto FREE

We are opening new territory and increasing our sales force. Great opportunity. If you mean business write today for details. Let us show you how to be independent how to make more money, how others are making \$6 to \$8 a day working for us. No experience necessary. Our new plan offers a fine premium with every sale. Double value for one price. Housewives can't resist. We furnish our representatives with a wagon or automobile free by our new plan. No scheme—not a contest—just plain business. Territory going fast. Write quick while this special offer is open. American Products Co., 8083 3rd St., Cincinnati, O.

It is to your interest to mention Farm and Fireside in answering advertisements.

The patterns shown on this page may be ordered from the Pattern Department, FARM AND FIRESIDE, Springfield, Ohio.

Copyright, 1916, by The Crowell Publishing Company

Little Flossie Meredith, Jasper Co., Iowa, sent in her name and we gave her a beautiful pony named "Pat." Now she has fun all the time.



Boys and Girls

George Edwin Adams lives in Cayuga County, New York. He sent in his name and I sent him "Dolly." George says "Dolly" is a very fast little horse and he has been offered \$150 for her.



Ponies Given Away

Here is the chance you have been waiting for to get a beautiful, playful little Shetland Pony, with Buggy, Harness, Saddle, Bridle and Blanket—all given to you without a cent of cost.

I am the Pony King of America, and I have given away more than 375 Ponies to boys and girls. Now I am going to give away several more Ponies, and I want every family that reads this paper to stand an equal chance to get one.

If you are a Boy or Girl, send in your name. *If you are the Father or Mother* of a boy or girl, send in your child's name. No charges of any kind, and nothing to buy. Just send in your name and address.

Children Don't put off this chance. Don't wait. Write your name and address in the corner below, cut it out and send it to me. I will then send you the beautiful *Free Pony Picture Book* and you will have an equal chance to receive one of the real live Ponies that I am going to give away soon. You stand just the same chance as any other child, and it doesn't cost you a cent. Get a pencil and write your name now.

Parents Please show this offer to your child, and send in the Coupon. You will be interested in the free Pony Book I send, and your child will enjoy it immensely and profit by it. I receive many letters from children telling me how they enjoyed reading the book. Besides, *your child may win* one of the Shetland Ponies I am *actually giving away* this season. Your child stands the same equal chance as any other child.

Just Sign Your Name

Send Your Name
For Free Pony Book

This
Free Pony Book

Here is a wonderful Pony Picture and Story Book. It tells the stories of hundreds of children and the Ponies I gave them. It is full of pictures of these children, playing with their Pony Pets. It tells how the children won them, how the Ponies were shipped to them, and the good times they are having with them. It tells all about the tricks they do and what they are fed and how they are cared for. I will send a copy of this wonderful Pony Book free to every boy or girl who really wants a Pony and who sends in his or her name. Write your name in the corner on the left and mail it to me right away. I want to hear from every boy and girl who doesn't own a Pony

591 Webb Bldg. THE PONY KING St. Paul, Minn.

Pony Coupon

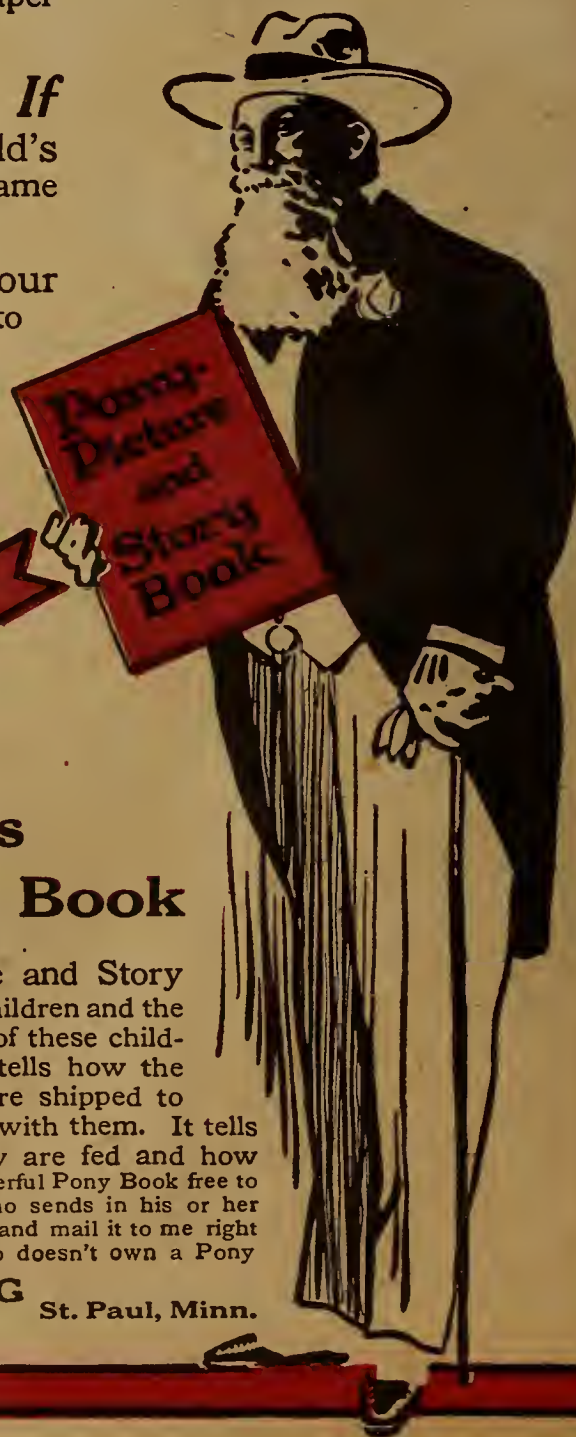
THE PONY KING,
591 Webb Bldg., St. Paul, Minn.

Send me the Free Pony Picture Book, containing pictures and names of children to whom you have given Ponies. Also send me pictures of the Ponies you are going to give away soon, and Certificate of Membership, so I can join your Pony Club and get a Pony.

My Name is

P.O.

State.....R. F. D.....



More Than 600,000 Copies Each Issue

FARM *and* FIRESIDE

LIBRARY
RECEIVED
SEP 16 1916
U.S. Department of Agriculture

The National Farm Paper - Twice a Month

ESTABLISHED 1877

5 cents a copy

Saturday, September 16, 1916

Eastern Edition



PHOTOGRAPH BY JOHN KABEL

When the Fodder's in the Shock

It Solves the Hauling Problem on Your Farm



SMITH Form-a-Truck



Will go anywhere you can go with horses—do its work in one-quarter of the time and at much lower cost.



8 in 1
body for
Hay Hauling

Smith Form-a-Truck combines with any Ford or Maxwell chassis to make a fully guaranteed one-ton truck. 44,000 contracted for—thousands to farmers who are replacing horses in their farm hauling and using the modern time-saving and money saving truck.



Loose
Grain on
8 in 1 body

\$350

An 8 in 1 convertible body for farm use is furnished with Smith Form-a-Truck at slight additional cost. The body, by the simple manipulation of levers gives 8 distinct body types meeting every requirement of farm hauling.

These 8 bodies obtained without removing the original body from the chassis, really gives you 8 complete farm wagons in one—each instantly available for service without any delay.

For the Smith Form-a-Truck added to the price of any Ford, old or new, or any 1916 Maxwell, and your one-ton truck is complete.

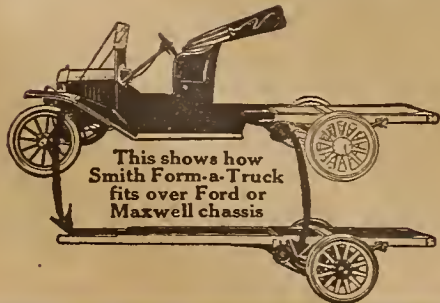
Smith Form-a-Truck places farm hauling upon the basis of machine efficiency, hauling loads to the nearest town, doing work in the field, and accomplishing every other form of hauling that you are now doing with horses, at a great saving of time and at a tremendous money saving.

In place of starting away at 3 or 4 o'clock in the morning in order to be in the city markets early, farmers using Smith Form-a-Truck now start at 6 o'clock and still arrive in ample time. In place of dragging along over the road late at night, they come back doing from 12 to 15 miles an hour and are home early, with plenty of time to spare.

Working in the field, hauling grain, hay, fertilizer, vegetables, Smith Form-a-Truck takes an hour or two, where horses take from half to three-quarters of a day.

Smith Form-a-Truck furnishes the economical, modern way of doing farm hauling.

Send for our big farm booklet. It tells you all about the Smith Form-a-Truck and the famous Eight-in-One Convertible Farm Body.



This shows how
Smith Form-a-Truck
fits over Ford or
Maxwell chassis

Hauling
Fertilizer
with 8 in 1 body



8 in 1
body loaded
with Crates

See It!

Big Smith Form-a-Truck Exhibit at Leading Fairs

Smith
Form-a-
Truck Co.
Suite 943
1470 Michigan Ave.
Chicago, Illinois

Gentlemen:—Without obligation on my part, please send me full details of your attachment and the new convertible body for farm use. I am interested in how the Smith Form-a-Truck can save me money and give me better service than I am getting with horses.

Smith Form-a-Truck Co.

Suite 943 Smith Form-a-Truck Building
1470 Michigan Avenue, Chicago, Illinois

Name.....

Town..... County.....

State..... No. acres owned.....

FARM *and* FIRESIDE

Published Twice a Month by THE CROWELL PUBLISHING COMPANY, Springfield, Ohio

Copyright 1916 by The Crowell Publishing Company

Vol. 39

Springfield, Ohio, Saturday, September 16, 1916

No. 25

Raising Baby Beef

A New and Formidable Rival Now Confronts the Big Steer

By JOSEPH A. RICKART

HERE is an interesting and very readable article that tells how you can feed fat cattle at a profit and hold them until the market suits you.

THE EDITORS.

IN THE demand for beef cattle there is apparently a drift in the direction of finished yearlings. Baby beef has been coming more into favor for a number of years, first attracting popular attention about the time beef-steer values began to climb above five or, possibly, six cents a pound. The higher price a pound meant a smaller package for many consumers, and the big steer is now confronted with a formidable rival.

In considering the point as to whether or not it is more desirable to produce baby beef than the heavier animals, at least three points of view must be considered. There is the viewpoint of the producer and that of the consumer, and also a view of the question which concerns both producer and consumer—the possibility that producing baby beef reduces the total productive power of the live-stock industry.

A large Texas breeder, who has specialized for the last twelve years in furnishing calves and yearlings to corn-belt feeders, was asked by the writer to state some of the advantages to the finisher in fattening calves or yearlings, instead of two- or three-year-old steers.

"I hesitate to express an opinion on this subject because, although my position is well known as favoring the finishing of cattle in the yearling stage, there are a lot of mighty good men in the range country who sell their steers at two and three years."

"But you have some good reasons to give the men who buy your calves and yearlings why it is more profitable to finish them as baby beef than to handle older cattle?"

"Well, yes; I think I give them good reasons," he said. "I just give them my own reasons for the faith that is in me. In the first place, young cattle make quick and cheap gains. Then they put their owner in an independent position with reference to playing on the market. If the general cattle market takes a bad turn, a man who is feeding calves or yearlings can keep on feeding while waiting for an upturn, without making any sacrifice. He can feed his calves or yearlings for a whole year if he has to wait that long for a favorable turn, and they will be ready to market any day during that time. The man who is feeding big steers cannot juggle the market that way, for big cattle soon reach a point where they can be fed no longer at a profit."

Mr. J. W. Heskett, the owner of the baby beefs shown in the picture, while a little disappointed in the gain in weight the calves made during the winter, has been finishing calves or yearlings for the last few years, and believes they pay better than older cattle.

"My conclusion," he said, "based on experiments of my own in the last few years, is that there is more money and surer profits in feeding young cattle, either calves or yearlings, than there is in feeding older cattle, as they will 'grow' a profit of about \$10 a head. I prefer them because of their growth in size and fattening, both at the same time. Also, if market conditions are not right, one can feed right along at a little profit until the market is right, and the gains will a little more than pay for the feed."

"How did you handle the drove shown in the picture?"

"These calves were bought in Wichita about No-

vember 1, 1915, and were put on a light ration of shelled corn and alfalfa for thirty days, and have been on full feed since the first of December till they were sold, April 25, 1916. These calves cost about \$7.50 a hundred pounds, and weighed 500 pounds each, when bought November 1st. They made less gain than I had expected, although they did very well considering the bad weather. They gained a little less than 300 pounds a head, and consumed a little more than one peck of corn a day a head. They weighed 792 pounds a head when sold, and brought \$9.35 a hundred pounds."

Prefers to Feed Young Cattle

DURING the second week in May this year a northern Kansas stockman marketed a carload of Angus calves at Kansas City, a little less than a year old, which brought \$9.50 a hundred pounds, and weighed 726 pounds each. He has been feeding

Kansas, brought a shipment of stock to market in which were two calves, twins, dropped in July, 1915, one of which weighed 610 pounds and sold at \$8.50 a hundred pounds; the other 540 pounds, and sold at \$8.65 a hundred pounds; total cash received for the two calves, \$98.56. This feeder said that he bought the mother of these twin calves at a sale in June last year for \$70, less two per cent for cash, and that the next month she dropped these two calves.

"I just let the cow devote her whole attention to raising these two calves," he said. "Last fall I put the cow and the two calves into the feed lot with some steers I fed during the winter, and have just sold them to-day. The cow weighed 1,370 pounds, and brought \$7.50 a hundred pounds, or \$102.75. You have the figures on the two calves. I call that a good deal of beef for one cow to produce within a year."

A. J. Cawner, Bartley, Nebraska, fed some Hereford steers last winter, and let four head of calves run in the feed lot with the steers. He sold his cattle at St. Joseph, May 8th, this year, and the four head of calves, which were then seven months old, averaged 722 pounds in weight, and brought \$9.50 a hundred pounds, or \$68.58 each.

"That is some returns from calves seven months old," said Mr. Cawner, who was agreeably surprised because he had paid no special attention to these calves in the feed lot.

While it is clear that a beef animal will put on more weight during its first year than in any subsequent year—and this means that if a given plant is kept going constantly it can produce more pounds of beef a year by finishing cattle as yearlings—there are other considerations which take some of the bloom off this conclusion. Obviously, if more yearlings are finished every year, breeding herds will have to be larger. Twice as many cows will have to be kept to produce a given number of yearlings every year as would be necessary to produce the same number of two-year-old steers every two years.

This may not work out in exactly that proportion, but cattle that are sold as yearlings do not have to be kept through their second year, and their place in that event during the second year can be taken by other cows.

Again, yearlings do not dress out as high a percentage at the packing house as heavier steers by two or three per cent. There is less bulk in the fore and hind quarters, in proportion to the total weight, in the young animals. This, of course, cuts down the advantage gained by being able to produce more pounds on the hoof by finishing cattle as yearlings, but it by no means destroys that advantage in favor of the yearlings.

The smaller killing percentage yielded by yearling cattle concerns the consumer, for it raises the cost of the beef to the killer, also to the retailer, and then to the consumer. Nevertheless, there is a demand on killers for baby beef sufficiently urgent to cause them to pay higher prices for choice finished yearlings than they pay for heavier steers of equal finish.

"What is the reason you pay \$9.75 for yearling steers and heifers to-day and only \$9.45 for prime heavy steers weighing 1,500 pounds?" I asked a buyer for one of the large packing houses one day in May this year.

"Because we have orders for baby beef, the other houses have similar orders, and the resulting competition runs the price up. Of course we also have orders for the big beefs, but the supply of big cattle more nearly meets the demand, [CONTINUED ON PAGE 11].



These baby beefs were sold in Kansas City, April 25, 1916, at \$9.35 a hundred. They weighed 792 pounds a head. They were bought at \$7.50 a hundred, November 1, 1915. Then they weighed 500 pounds a head.

calves each season for a number of years, with few exceptions, and when asked why he preferred them to aged steers, he said:

"I believe it is well understood that if you feed a steer long enough he will eat his head off. Well, I aim to quit feeding at the point where the feeding operation begins to show a decline in the daily profit, and sell my cattle right then."

"Past experience enables you to tell when to sell?"

Waits a Year for Good Market

"YES," he said; "we test the thing occasionally. Two years ago we held our yearlings over, and fed them another year. They weighed 1,100 pounds when we sold them, and brought about the same price a pound that prime yearlings were bringing; possibly a little less. But, as you see, in two years we had produced 1,100 pounds of beef to the animal, while in a year we get 700 pounds in a yearling, and in two years, by selling the yearlings each year, we get 1,400 pounds of beef."

This last remark might be a partial answer to the question of whether baby-beef production is apt to decrease the total output in pounds of beef of the entire cattle-raising fraternity, but it is not complete, for there remains the fact that larger breeding herds would have to be kept to operate strictly in yearlings.

An extreme case of baby-beef production in pounds, and also in profit to the feeder, came under my observation in April this year. A feeder in Morris County,

When a steer steps on your foot, do you use the business end of a pitchfork on him? This is about a man who doesn't

Beef on High-Priced Land

Where Practical Methods Produce Steaks at a Fair Profit

By W. R. SCHOOLER

IT HAS been my experience that it pays for the man who does diversified farming to feed cattle. Whether he feeds a large or small number, he has his own grain and roughness to start with, and to dispose of farm products on hoof means a ready market for them, with nearly always a fair increase in profits. Then there is the fertilizer from the cattle lot, which can be utilized to build up the land, thus making a greater yield of crops.

There are many different ways of feeding cattle for good results, but my endeavor in this article will be to show the methods that I have found the most practical in my section of the country. In the first place, my lot is small, not exceeding more than two acres for four or five carloads of stock. The feeding sheds, which are under cover, are open to the south, and also to the north when the weather permits, so that there is good ventilation. They are large enough to shelter all the cattle and to hold the grain and roughness for feeding. Corn that is going to be fed should be kept dry, for when it is wet, cattle will eat more of it in proportion than of the roughness, and to do well they must be kept on a regular diet. The watering tank is not more than fifty yards from the feeding troughs. Everything is arranged as conveniently for the cattle as possible, and nothing is allowed to disturb them from the outside of the lot, nor is there any unnecessary confusion permitted on the inside.

A steer may accidentally step on my foot or soil my clothes, but I don't use the business end of the pitchfork on him; neither do I make him get up if he happens to be lying down in my path; I go around him. If steers are treated gently, even the wildest ones will learn to have confidence in the person handling them; and gentle, contented, lazy cattle are necessary to make the money they should make.

For feeders I usually buy two- and three-year-old steers already bunched by someone in my own neighborhood, or I go to a big live stock market to buy them. January and February are the months that they can be bought at the best prices considering the kind of flesh they are carrying. They cost a little more at that time, but they have lost their grass fill, which makes up the difference. I feed no particular breeds, but select those cattle that are low to the ground, have good mouths, well-arched ribs, are wide across the hips, with broad straight backs—characteristics showing the ability to put on flesh as well as excellent digestive organs.

These cattle are kept through the spring in fairly good condition, and, as soon as possible, put on grass. By the next fall they have made a gain of something like 250 pounds with very little cost, especially if a man has his own pasture land and roughness.

In December and January I like to begin feeding. Then the cattle are ready to ship in May and June, at the time when the market is cleared of winter beeves and before the grass-fed stuff comes on.

Self-feeders are used to feed from. There are two long troughs, one for shelled corn and one for ear corn, and these must be kept clean and dry. Cattle will not eat wet, stale feed. I do not use a salt box, but salt or brine the feed at the rate of one handful for each steer a week. If salt is kept by cattle they are apt to eat too much, especially in wet weather. I feed them regularly night and morning, and always at the same time. To make a success of cattle feeding, system is absolutely necessary, and it is a business which cannot be trusted to too many hands.

Now, I have tried pretty nearly everything, and the feed that I have found the most satisfactory to use with corn down in my section of the country, is flax. Some time ago I bought flax tow from my neighbors for roughness, and I liked it better than anything I could get excepting clover hay. Also I found the poorer the job of threshing the better the cattle did. So I concluded that if a little flax was good for them, perhaps more would be better. I commenced sowing my own flax, and when it was ready to harvest I cut it with a binder and shocked it like wheat. Afterwards I either stacked it or put it up in mows, but it keeps all right in the stack. I never thresh it. Before feeding I shake it well so that it tangles, and when put in the rack the cattle pull it

out by bits instead of bunches. Around the rack is a trough extending out far enough to prevent the bolls or bits that drop when the cattle are eating from falling to the ground and being wasted. It is wise to observe all such small economies, which amount up to a great deal in a few months' time.

A steer will eat eight pounds a day of flax in the sheaf, which means that he gets two pounds of flax seed. This he grinds well in chewing the straw. The seed is pretty nearly all digested, but what isn't the hogs get, and it is good for them.

Steers Gain Three Pounds a Day

SINCE I have been feeding flax in this way, I have never lost a steer out of the 1,200 fed, nor have I had any foundered. They average a gain of something like three pounds a day on a 120-day feed. This is the usual length of time spent in getting them ready for the market if they weigh around 1,000 pounds when they go in the lot. A man won't realize much of a profit on cattle that only make a gain of one and one half or two pounds a day.

To make a quick feed, cattle must have an appetizer, and flax is a good one. One winter I bought 2,000 bushels of flax and ground it, and I also ground my corn, cob and all. Then I mixed the two, feeding up to four and five pounds a day. This made a good feed, but no better than I have described above, and it cost more to handle it. It is better to let cattle do what they will for themselves. I don't even break my corn, for I think they can get at it better without breaking, and there is no use for additional labor unless it benefits the steer.

Flax in the sheaf cannot be bought on the market, so if it is to be fed it will have to be bought either



To dispose of farm products on the hoof means a ready market for them. But to be a successful cattle feeder a man must use a lot of good common sense in the business, and stick to it

from neighbors or grown on the feeder's farm. When flax seed is selling for \$1.25 a bushel, flax in the sheaf ought to be bought for \$15 a ton.

To be a successful cattle feeder a man must use a lot of good common sense in his business, and stick to it. Of course there are some years when it would be better to stay out and let the other fellow feed, but no one is shrewd enough to guess those years. We have just come through three or four pretty good years, and have realized a fair average profit. It is the man who dips in and feeds a few cattle because his neighbor made money feeding the year before, or for some similar reason, that low markets hurt, and not the regular feeder.

Lighting the Farm

By MRS. JAMES LAMPMAN

PROPER light for the house, the barns, and the other buildings has been one of the farm problems. But it is solved now. A person can take his choice of gas or electricity. The endless washing and cleaning of many lamps and lanterns is over.

Aside from the work, the light was often inadequate. The growing boys and girls usually have to study or want to read during the evenings, and a brilliant light is a blessing.

Some time ago we installed an acetylene-gas lighting plant on our farm. We are highly pleased with the results. We have a light in every room. The gaslight is odorless, smokeless, and gives a clear white light. It enables us to read easily anywhere in the living-room, which is 16x22 feet.

Now that electric lighting plants for farms have been perfected, many people who prefer electricity to gas are installing electric plants at small cost.

We bought our gas plant from a bankrupt firm for \$25. We have used it for six years and have never paid out a penny for repairs on it.

It is a ten-light machine and always gives us plenty of light. Our bill for carbide is about \$8 a year. We buy it direct from the manufacturer. Any man who is handy with tools can install the plant. My husband purchased the needed tools for cutting pipe and other work for \$7. We placed the plant in the cellar. The gas was piped directly to the garret. From the garret the gas was piped down, below. The pipe used for the living-room came down between partitions on the second floor. This enabled us to have a side light in each room up-stairs, and a chandelier in the living-room. We also have a chandelier in the dining-room. All other rooms have side lights. And last, but not least, is the gas sadiron that attaches on the kitchen light, making ironing a pleasure.

One family who heartily admires the gaslight upon being asked why they did not install a plant replied, "We could not afford it."

Suppose each member put his shoulder to the burden and each one boosted for that plant. There are some vegetables in the garden that go to waste—find a market for them; canned by the process way, city housewives are very glad to get them. Then there are apples, too, that are not used. Plan to utilize every one. Apple butter sells readily and cider vinegar finds a ready market. Pop corn, too, is easily raised and will go to help swell the light fund until almost before you know it the light will be yours.

Winter Preparedness

By CLIFFORD E. DAVIS

MANY persons never begin to prepare for winter until the first snow comes, and then they are compelled to husk corn with numb fingers and haul soddy firewood just at the time when myriad chores need attention. Like the little boys who missed the train, the fault is not in their speed but because they did not start soon enough.

Knowing what the stock and household need, it is a good plan to be preparing for fall and winter storms early. The hogs, cattle, sheep, and horses need warm bedding. If straw is scarce there is no better substitute than leaves. They are a good basis for compost, and when mixed with the stable manure they make a rich fertilizer as well as a soft, warm bed.

During the last days of October or the first week in November there are generally warm days when the leaves are dry. Then they can be raked in piles and pressed tightly into bags with foot pressure, tied, and stored in a dry place. Every year I generally gather 40 or 50 bags.

When the husk on the corn ear is dry, it shows that the corn should be cut however green the blades may be. To wait until the blades are dry or blighted makes less

valuable fodder. If a person has a distinct schedule of his work he can go from one job to another without delay, and the amount of labor accomplished is amazing.

It is usually a bad job getting winter fuel when the weather sets in bad, so the coal should be hauled while the roads are solid and dry, and the wood piled high at the chip-yard in time.

If the farm does not produce enough hay, corn, etc., the supply should be secured early and a full supply of all groceries, flour, mill feed, clothing, etc., secured in time. While "the frost upon the pumpkin" is a beautiful poetic figure, it spoils the keeping qualities of this succulent pie timber, and pumpkins should be stored in a cool, dry place before the frost is quite due. The turnips should be topped and buried or put in the cellar in time.

October is the rush month with the farmer, what with fall seeding, fruit-picking, and potato-garnering, and it takes a cool, wise head to see that there is no "lost motion."

On the rightly conducted farm the first snowfall should see all the farm work done and plenty of food and all things needed for stock and family. This can only be done by "here a little, there a little" until the full amount is gathered. Then, while the blizzards roar, the farmer can sit by the fire in peace.

"Heap on more wood, the wind is chill,
But let it whistle as it will,
We'll keep our Merry Christmas still."



Selecting seed potatoes at harvest is a practice that is growing more popular every year. To many persons, however, a potato is still a potato, and any kind of scrubby, scabby potato is used for seed. The public taste of the Northern States demands a white-skinned potato, while the Southern States desire a red-skinned variety

Next Year's Potato Crop

Harvest Time Proves to be the Best Time to Select Seed

By JAY LAWRENCE

POTATO-HARVEST time is a good time to select the seed that will be planted to produce the 1917 crop. To many persons a potato is a potato. Any kind of scrubby, scabby potato is used for seed. When potatoes are being grown for market the public taste must be considered. In

most of the Northern States the public demands a white-skinned potato, while in the Southern States the red-skinned varieties sell as well and often better than the white ones, but this is more noticeable in early marketing. When a person is growing potatoes for his own use, and not to put on the market, it might be well for him to make a trial of a number of varieties in small quantity and select two or three that are best adapted to his particular soil and climate. The sorts for one soil or farm will often be disappointing when grown on near-by farms. Some varieties as the Early Ohio, Early Harvest, Bovee, and Early Michigan require a rich soil to do their best, while the Carmen and Early Rose are not so particular about the soil on which they are grown. Some kinds do best on sandy soil; others reach the highest state of perfection on clay loams.

In the past five years we have tested about seventy-five different kinds of potatoes, or nearly every kind catalogued by seedsmen. A number of these were dropped after the first year's test, but for the last three years we have grown about forty of the leading potato varieties side by side. At the start we were rather unfamiliar with the characteristics of the different types, and planted a number of duplicates that were sold under some new name by an unscrupulous or uninformed seedsmen. Some varieties are deliberately or unintentionally sold for something else. Also mixtures of varieties similar in appearance are often sold as one. We have found the Rurals are often sold as Irish Cobblers, and to the ordinary purchaser the difference is not noticeable. This substitution would not make any great difference as far as the eating quality is concerned, but for seed purposes it makes a vast difference. Some of the so-called new varieties listed by unreliable seedsmen as new are nothing but old standard varieties with a new name. I therefore advise buyers to be sure they are dealing with firms who have a reputation to lose.

Tests Many Important Varieties

SOME of the more important varieties we have tried are Irish Cobbler, Carmen No. 3, Bliss Triumph, Early Ohio, Six Weeks, Banner, Russet, Bovee, Beauty of Hebron, Maggie Murphy, Spaulding No. 4, Early Rose, American Giant, Burbank, Peachblow, Blue Victor, Blue Mechanic, White Ohio, Seneca Beauty, Livingston, Rural New Yorker, Sir Walter Raleigh, Green Mountain, and Vermont Gold Coin.

A variety that does well one year may not do so well the next year. In 1914 the Red Seneca was one of our very best yielders, while in 1915 it was almost a total failure. This failing of the Seneca was not local, because the same story came from every county in Ohio last year. This failure was attributed to the fact that, as this variety forms tubers rather later than most varieties, it happened that they were forming at the time of the severe drought in August. The two or three weeks of very hot weather in August which followed the wet spell almost killed the Seneca Beauty. We have found this variety to be one of the

very best yielders as well as a very fine potato to cook with "jackets on."

We have decided that the Carmen is the best all-around late potato for our use, although there is scarcely any difference in quality between it and the Rural New Yorker or the Sir Walter Raleigh. This

variety is almost a certain cropper, and produces as a rule a uniform lot of potatoes in every hill. The Carmen is quite resistant to the early and late blight, and is also a strong, sturdy grower. The Green Mountain is a fine potato, and is less susceptible to scab than the Carmen. These two varieties are of the same type, but the Green Mountain is more blunt at the ends and has more of a russeted skin. The Minnesota Russet is a good yielder, but has not proved satisfactory with us for cooking. The Spaulding No. 4 and Maggie Murphy have pink or reddish-brown skins, but otherwise they are very similar to the Carmen in shape, eating and yielding qualities, and manner of growth. The red or pink skinned varieties have white blooms, and we have found them less able to resist disease than the white-skinned varieties. We have found this especially true among the early varieties.

In our tests the Bliss Triumph has proved to be the best yielder among the early varieties, and we consider it by far the best for cooking, particularly for chips and frying. This variety is a very early one, and we have often dug new potatoes in six and seven weeks from planting. In many localities this variety is called the Six Weeks potato, but this is incorrect, as the Six Weeks is almost identical with the Early Ohio, and is not nearly so early as the Triumph. Six Weeks and Early Ohio have pink skins and the tubers are rather egg-shaped, while the Triumph tubers are short and thick, some of them being almost globular.

Among the other early varieties we find the Early Michigan, Early Rose, and Irish Cobbler to be extra good ones, and in some cases might be preferable to the Triumph. If a farmer is growing early potatoes for market he will be better satisfied with the Irish Cobbler, as the public demands a white potato. In marketing our crop we find that customers who have at one time lived on a farm and raised potatoes will take Early Ohio, Early Rose, or Triumph in preference to Irish Cobbler. We find that Early Rose as well as other varieties that naturally grow long tubers have a greater ten-

dency to grow pointed and run out. These varieties are hardly vigorous enough for the main crop in the corn belt, and their place is taken by the flattish varieties, such as the Carmen, Green Mountain, Rural, Spaulding, and Maggie Murphy.

Potato experts are often asked to recommend a variety of potatoes that will have a tuber of a certain favorite shape. The public has the conception that tuber shape is a definite thing, but such is not the case. While varieties have tendencies to typical shape, conditions and seasons modify tuber shape greatly. Varieties tend to resemble each other in their best and their worst shapes. The most typical shapes are found in the medium sizes. Under unfavorable conditions, such as poor soil, insufficient amount of moisture, improper depth of planting, etc., there will be found the characteristic poor shapes and unnatural colors.

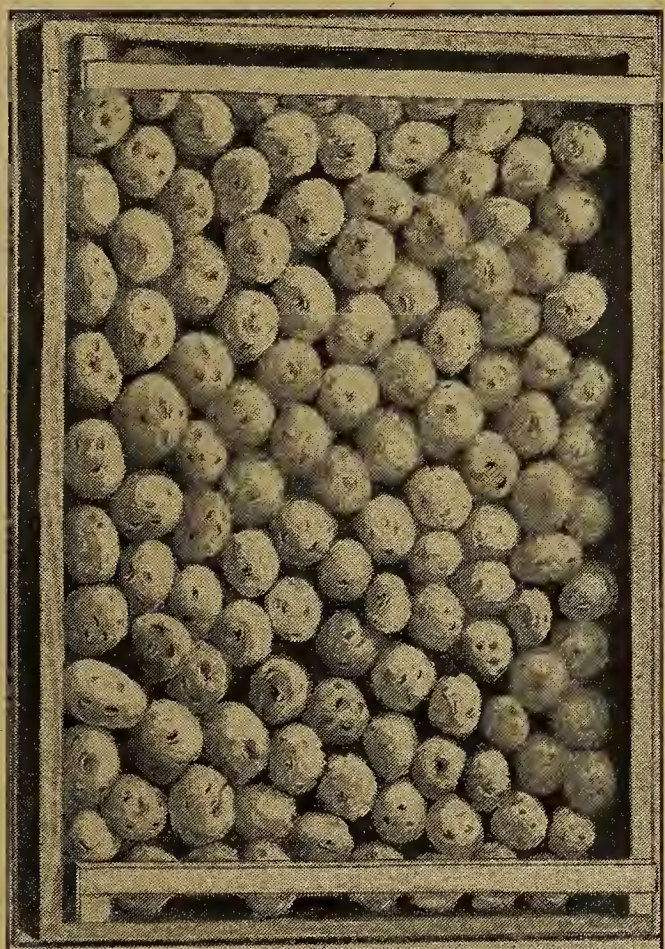
Potatoes that have a russeted skin, as the Russet Green Mountain, etc., hardly ever scab. A few varieties are more or less immune to blight. Bliss Triumph is considered one of the most susceptible to blight, but we have always been able to combat successfully both early and late blight by spraying with Bordeaux mixture. The Bordeaux mixture is made by dissolving five pounds of copper sulphate (blue vitriol) and five pounds of quicklime (not slaked) in fifty gallons of water. The sulphate is the fungicide, and the lime prevents injury of the plant.

Spray Kills Bugs and Blight

THE lime also gives the mixture the sticking quality, so that rains do not wash it off the foliage. By adding one-half pound to one pound (according to strength) of Paris green or three pounds of arsenate of lead to fifty gallons of Bordeaux, the potato bugs and flea beetles can be destroyed at one operation. This spray solution kills all kinds of leaf-eating insects, and protects the plants from blights also. Spraying with Bordeaux mixture causes the leaves to grow thicker and stronger, and the sulphate coating prevents the growth of disease spores. We have actually increased the yield of tubers sufficiently to pay for the spraying, even when there were no bugs or blight to combat, by spraying with Bordeaux.

Too many wait before spraying until bugs or blight appear, and lose out in the game at the start. The grower must watch his crop, the season, and conditions, and must know exactly for what purpose he is spraying. He can then do the work intelligently as well as thoroughly. It is now too late to argue that spraying potatoes is not worth while, in the face of all the evidence piled up showing the profit following proper spraying for blight. Excepting blight, scab is the most common fungous disease affecting potatoes, and it is one of the easiest to control. There is no absolute preventive if the land on which the seed is planted is infected with scab. The best preventive I have found is to soak the seed in formalin solution for two hours. One pound of formalin to thirty gallons of water. The potatoes must not be left in the solution much over two hours or the vitality of the seed will be greatly injured. If the tubers are exposed to the sunlight for about two weeks before planting, the percentage of scab will be reduced and growth will be hastened.

Many potato growers have the mistaken idea that if potatoes are allowed to be in the sunlight they will sprout worse than if they are kept in the dark, but the reverse is true. We store our seed in racks, as is shown in the illustration, and aim to plant just as soon as the ground can be got ready in the spring, as in most cases the early-planted crop gives the best yield under our conditions.




Storing selected seed potatoes of different varieties in racks, one tier deep, is an excellent method



The 184 seeding potatoes were produced in one hill from potato-ball seeds at the Montana Experiment Station. The tubers may furnish new varieties

Building Materials at a Saving of 15 to 50 %



BENNETT DOOR TO THE HEART OF THE LUMBER MART

More lumber comes into Tonawanda by the most direct and cheapest freight routes than any other center. The Bennett yards are located in the choicest section of this great lumber mart and we receive our lumber direct from boats and trains without rehandling.

That's why we are the main doorway of the lumber world for purchasers of any size. No order is too large or too small to be promptly filled at the very lowest prevailing prices for new, bright, clean lumber and building materials of all kinds.

Remember—we do not handle wreckage, seconds or weather-beaten goods. Therefore, in comparing our prices remember the quality, too!

Great Stock—Prompt Service

Our business is so big and our stock moves so fast that we are sure to have just what you want at any time. And we can ship it to you just as soon as the order is received if you must have it. As this is the cheapest lumber center to ship into—it is also the cheapest to ship out of—so you are sure to save money on freight from us as well as on the merchandise.

Our Mail Order Department Sells to You Direct at One Small Profit

In view of our great business with the wholesale lumber trade we are in an enviable position to give our Mail Order trade unmatched values and prices in everything required in building from cellar to roof. It is the immense volume of our sales that makes us the Ford of the lumber trade—and practically puts us in a position where we can regulate prices for the benefit of our retail customers.

Bennett Beats the World on Shingles

Greater stock—greater quality—lowest prices ever known. Don't buy shingles until you know what Bennett quality and prices stand for. There are hundreds of grades on the market—but we handle only the best at very low prices—and that's the only kind you can afford to buy.

BENNETT RED HEART SHINGLES 100% Clear—95% Guaranteed Vertical Grain

None but old growth Washington Red Cedar trees used—no saplings—only finest, biggest old trees grown on earth. Not a single wedge shape shingle. Strictest grading rules—stricter than any others, anywhere.

Stained Shingles

We save you time, bother and money on staining. Our staining process takes 48 hours to complete. Preserves and beautifies. We match any tone or color. Send for free Stained Shingle color pad, and prices.

Bennett Barn Bargains

Don't forget the quality—the prices speak for themselves.

Matched Siding—genuine soft Michigan white pine. 1 x 6" No. 3 dressed and matched. Price per 1,000 ft., 10 to 16 ft. lengths.....	\$29.00
Sound Spruce Siding—1 x 6", dressed and matched. Price per 1,000 ft. in 10 to 16 ft. lengths.....	\$28.00
Yellow or Southern Pine Siding—1 x 4" No. 2 Common and Better, dressed and matched. Price per 1,000 ft. in 10 to 16 ft. lengths.....	\$22.00
Tamarack or Northern Cypress Barn Flooring 2 x 6" Dressed and Matched. Price per 1,000 ft. in 10 to 16 ft. lengths.....	\$25.00

You Need the Big Bennett Price Regulator Catalog

Full of wonderful values and clearly illustrating everything necessary to build a frame structure from cellar to roof—including all kinds and grades of hardware.

RAY H. BENNETT LUMBER CO., Inc.

Price Regulators in Building Materials

Bennett Wharves

N. Tonawanda

New York

Send Us the Coupon Today.

Ray H. Bennett Lumber Co., Inc.
Bennett Wharves, N. Tonawanda, N. Y.

Gentlemen:—Send me at once your FREE Price Regulator Catalog. I am particularly interested in the items checked.

- | | | |
|--|------------------------------------|-----------------------------------|
| <input type="checkbox"/> Lumber | <input type="checkbox"/> Lath | <input type="checkbox"/> Shingles |
| <input type="checkbox"/> Frames | <input type="checkbox"/> Doors | <input type="checkbox"/> Windows |
| <input type="checkbox"/> Interior Finish | <input type="checkbox"/> Wallboard | <input type="checkbox"/> Paint |
| <input type="checkbox"/> Clapboards | <input type="checkbox"/> Roofing | <input type="checkbox"/> Hardware |

Name.....
Address.....
Occupation.....

Other materials at equally
surprising prices



**FROM THE HEART OF THE
LUMBER MART**

We are located
at the center of
the greatest
lumber yard
in the world.

**YOUR BOOK OF
LUMBER
BARGAINS**

GUARANTEE
IF MATERIAL IS NOT
AS REPRESENTED

**Send
for
This
Catalog**

RAY H. BENNETT LUMBER CO.
NORTH TONAWANDA, NEW YORK

We guarantee that every subscriber will receive fair treatment from advertisers. It therefore pays you to mention Farm and Fireside in answering advertisements.

Save \$200 to \$500 on Your Home

300 Plans FREE!

Get our two plan books. Send coupon.
Pictures, plans, wholesale prices.
Show material Ready-cut to
fit, reducing construction
costs. Or in usual
way. Highest standard
grades. Built hundreds
of times. Convenience
ideas for women. "Guar-
anteed Prices"—not "Esti-
mates." \$300 up. Blue
prints, specifications; ad-
visory service free. Books
show what prices include
—See before ordering.
Send today. All FREE.



Gordon-Van Tine Co.
Satisfaction Guaranteed or Money Back

6046 Case St. Davenport, Iowa
Established Half a Century

We Ship Anywhere Wholesale
Save enough to buy your lot. Three banks and
100,000 customers vouch for us. Local reference if
desired. 5000 Building Bargain Catalog also FREE.

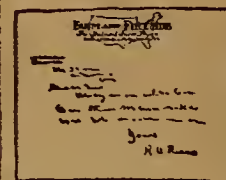
981
Gordon-Van Tine Co.
6046 Case St.
Davenport, Iowa
Please send me
Free the books
checked below:

<input type="checkbox"/> Building Material Catalog—Lumber, Mill- work, Hardware, Paints, etc.	<input type="checkbox"/> Ready-Cut Plan Book	<input type="checkbox"/> Roofing Samples
<input type="checkbox"/> Standard Home Plan Book	<input type="checkbox"/> Silo Catalog	<input type="checkbox"/> Barn and Outbuilding Plan Book

Name.....St. No.....
City.....State.....

The Editor's Letter

All Work and No Play Makes Jack a Dull Boy



THE city has gone to the country. Will the country go to the city?

Some twenty years ago the city man began to ponder in his heart the truth of the old saying that "all work and no play makes Jack a dull boy," and straightway he cast his eye around for some pleasant and healthful recreation for the Wednesday or the Saturday half-holidays he was learning to allow himself and quite naturally, inasmuch as he was working in his factory or in his office in the city, his imagination turned toward the country as the place for his recreation.

If you older ones will recall, it was in the nineties that the great movement of forming "country clubs" began its march from the Atlantic to the Pacific, until to-day certainly not a single city of 25,000 people but has a country club, and dozens and hundreds of towns from 10,000 up as well.

And to the country club it was that the city people began to look for their pleasure. Aimless traveling over the country, which was a pretty popular way of spending vacations twenty years ago, declined in favor, for there was now a definite place to go right near home with a change of outlook and an opportunity for recreation and exercise on the tennis courts or the golf courses of the country club.

And what is the underlying reason for the popularity of the country club among city people? Why, there is only one answer—change of outlook for both body and mind. People whose eyes have grown tired of the glare of brick, whose nostrils have sickened of the smell of hot asphalt, whose ears are weary of the noises of the city, have turned their courses to the country and in the freedom of the open have found their needed stimulation and their desired rest.

Well, this country club movement has been a great thing for city people, and I have been wondering if there isn't a real lesson in it for us country folks. Let's turn the tables and see. From April to November we farmers spend an average of ten or twelve hours daily in the open air. We have the quiet, the peace, the physical exercise that the city man longs for. But we in turn miss the good things that the city offers, which, if we were only energetic enough, we might enjoy with our city cousins.

I should like to form in every county in this land a city club. Its membership would be composed of those people who enjoy seeing good plays, who like good music, who appreciate a good lecture, who are anxious to meet and to know people in other lines of work. The city has just as many wholesome and beneficial opportunities of recreation to offer country people as the country has for city people.

AND to-day there are comparatively few of us who are entirely shut off from such possibilities. The city man takes his country pleasures in the summer, when, as a rule, his work is slack. The country man should take his city pleasures in the winter, when his work is slack.

Many winter days you might just as well as not go to town in the morning, plan to take dinner with some of your business friends, go to the library, see the New York, Chicago, London, and San Francisco papers. Spend an hour at the best "movie" theater, or make it in the evening for a good show, a good lecture, a concert, or a political meeting.

The longer I live the more convinced I am that play is the great rejuvenator. Recreation is re-creation, and we farmers as a class have not yet learned or accustomed ourselves to the habit of taking holidays. Twenty-five years ago the lawyer or doctor or merchant who would deliberately plan to take two afternoons a week off for recreation all summer would have been considered light-minded, to say the least. To-day city people rather look down on the man who has not arranged his work so that he can take a proper amount of recreation, and such men are getting scarcer every day.

And what is true of city men and



their needs is true for the farmer. The city man needs the country for his recreation; the farmer needs the city.

Good roads, trolley lines, automobiles, have all made this interchange possible and easy. The city man spied the good in our territory first, but that is no reason why we shouldn't follow suit and get the good that is waiting for us in the proper use of city opportunities.

THERE are now plenty of cautious alfalfa growers who are ready to show us that they are receiving ten dollars worth of Heaven-sent or Heaven-lent fertility (nitrates) an acre, annually, for the five-year period this crop is grown. If their field of alfalfa contains ten acres, the Heaven-given certified check deposited in or distributed through their soil bank is good for five hundred dollars to be drawn out gradually in their rotations.

These alfalfa growers are neither guessing nor gambling. They get their annual dividends from several crops of hay that is the equal in feeding value, pound for pound, of threshed oats, and sometimes a seed crop is thrown in.

When the five-year period ends, then comes the ten-dollar bonus an acre. Nor are these dividends and the bonus the only credit items in their alfalfa deal. These growers know that this deep-rooting crop pumps up potash, phosphoric acid, and lime from deep-lying subsoil deposits which shallower rooting crops never tap. The candid alfalfa grower will not contend that his favorite crop is the only valuable legume, but the case he makes for it leaves little luster to illuminate the other members of the legume family.

IT SEEMS to me that the most important word in our language is "enthusiasm." Nothing of importance is ever accomplished by anyone unless he has the quality for which this word stands. So long as we keep enthusiasm big within us, we are young and optimistic; hence, we have a stimulus to do things worth while. When enthusiasm dwindles or lags, we are old and prosaic.

The other evening I looked in on a gathering of young people numbering about one thousand, ranging from sixteen to twenty-one years and thereabouts. These youngsters were state delegates representing a young people's organization from several allied church denominations. It was the first night of their convention and the affair was mostly an informal get-together gala occasion. It was easy to understand how this first night was arranged as a premeditated safety valve to afford opportunity for such a surging, effervescent pressure of enthusiasm to escape.

The galleries of the great Memorial Hall were crowded with adults quite spellbound at first with the exhibition. The groups of young people massed on the main floor of the hall were nothing less than a dramatic human tornado of movement and crescendo of noise. The youthful delegates with their rather startling parti-colored costumes, banners, and regalias marched and countermarched and evolved for an hour or more. Each of a dozen divisions represented a city, town, or rural community, all keen to win a place for their local organization in the eyes and ears of the Committee on Location for the next year's convention.

The nerve-splitting combination of college and high-school yells, megaphone slogans, Indian war-whoops, horns, bands, songs, and whistles beggars description. In was pandemonium with the lid off. But the enthusiasm was contagious.

To get and keep this wonderful thing—enthusiasm—we must strive for it as we would for a mine of diamonds. The young have it always in some degree. It should be their great aim to conserve it and employ it to help to secure the best things in life. Those older can woo and win back this quality, and by its help can transform their whole life's outlook.

The Editor



A view of one of the farms that pay regular and certain dividends shows that there is nothing mysterious about it. The farm might be one of many in almost any State. Here is the answer: Building up the fertility, tiling if necessary, knowing the crops the land will grow best, and marketing the products properly

If you think you can make more money, be happier and live longer in town than on the farm—read this article

The Business of Farming

When Fertile Acres Pay Regular and Certain Dividends

By HARRY M. ZIEGLER

HE OWNS farms as investments. These farms pay him regular and certain dividends. He doesn't own the land primarily for the increase in valuation, but for what he can make from the crops. He builds good, substantial, practical, and serviceable buildings for the people who live on the places, and for their live stock and poultry, their machinery, and their products.

This man doesn't toy with farms as rich men's playthings. He has been owning and farming his land with renters for years, as his father did before him. He doesn't live on a farm because he has a big business in the city that takes much of his time.

Any thought I might have had about him as a city farmer was soon dispelled when we talked about humus, nitrogen, potash, and phosphoric acid, and what it cost him to raise a bushel of corn, what a man could afford to invest in farm buildings and equipment, the place live stock deserve on a grain farm, how much lime to use on sour soil, what rotation to use in the corn belt, whether it paid to store grain, and when was the best time to sell corn, wheat, oats, and hay, or if it were best to feed everything to stock and market the grain on four legs. These and other questions were soon a part of our conversation.

"What do you think of farming as a life-work?" I asked him. "What are the rewards? Why should I, a young man, take up farming as a means of making a living? Couldn't I do better in the city? Wouldn't I have a better time there?"

How to Increase Farm Revenues

"**F**ARMING offers a clean, honorable, independent, healthful life, and a good living to a great many persons," began John A. Cavanagh of Des Moines, Iowa, owner of many farms and vice-president of the Des Moines National Bank, "but to be really successful in a money-making way a farm has to be conducted as a factory or any other big manufacturing business is conducted.

"Whether the occupation is a healthful one is one of the first things to be considered by a young man in determining what his life-work is to be. Few young men give this much thought until later in life, when many times it is too late to make a change except at a great sacrifice. Outdoor life such as one gets on a farm is more healthful than being shut up in a store, a factory, or an office."

The kind of land, the horses needed to farm it, the machinery required, the kind of crops, the distance to market, and the marketing methods are the principal things to be considered after health, Mr. Cavanagh believes.

A young man should choose a section of the country where there is sufficient rainfall to produce the crops he wants to raise, and he should be familiar with the farm practices of that part of the country.

Many young men, thinking they knew more about what sort of farming paid best in a farming community, have lost all their money while they were learning that their neighbors were not as "old foggy" as they had thought.

"How can a young man learn the farm prac-

tices of the country he wants to settle in, and how can he get the money to buy a farm there?" I asked Mr. Cavanagh.

"By getting a job with a successful farmer in the community," he replied. "He will learn how successful farmers meet difficult crop situations."

When working as a hired hand for a successful farmer a young man will learn about the soil, and how it has to be cropped to give the best results. If a farm is a stock or a grain farm, or both, the young man will learn how much and the kind of machinery needed; he will learn about the horses and tractors, and how crops and stock are marketed.

"Farming is a business of percentages," said Mr. Cavanagh. "The ten-year averages don't vary very much. If some parts of the growing season are unfavorable for good crops, other parts are more favorable and make up the difference. Possibly the next year the same crops will do better, and thus make up the losses of the year previous."

"A 100 per cent crop has never been raised. Even the so-called bumper crops are not 100 per cent crops. But 100 per cent crops are not necessary for successful crop production."

Although the price of land is soaring, farm wages are on the up-grade, so that during a young man's

apprenticeship as a hired hand on the places of successful farmers he will be able to save more money than he could have saved before this.

Many young men in the country have been led to believe the place for them is in the city. Uncongenial surroundings have caused other young men to become dissatisfied with life in the country.

A man can have as many conveniences in the country as he can afford to have in town. Certainly if he could own a motor car in town he could keep one in the country. More often the farmer gets a car before his city brother. Sixty per cent of the motor cars sold in 1915 were bought by farmers. Electric or gas lights, hot and cold water, a bathroom and its conveniences, can be installed at no great cost.

Now the farmers enjoy better rural schools, improved roads, and a happier community life than they ever had before this. With a motor car the things the city or town has to offer in the way of entertainment are possible of enjoyment by the young farmer.

"Farmers that keep books on their production,

what it costs to produce a crop, and what it sold for can tell within 10 per cent what their profits will be for a five or a ten year period," continued Mr. Cavanagh. "The difference isn't nearly as much as one would think who doesn't keep accurate account of the production and selling price of products from year to year."

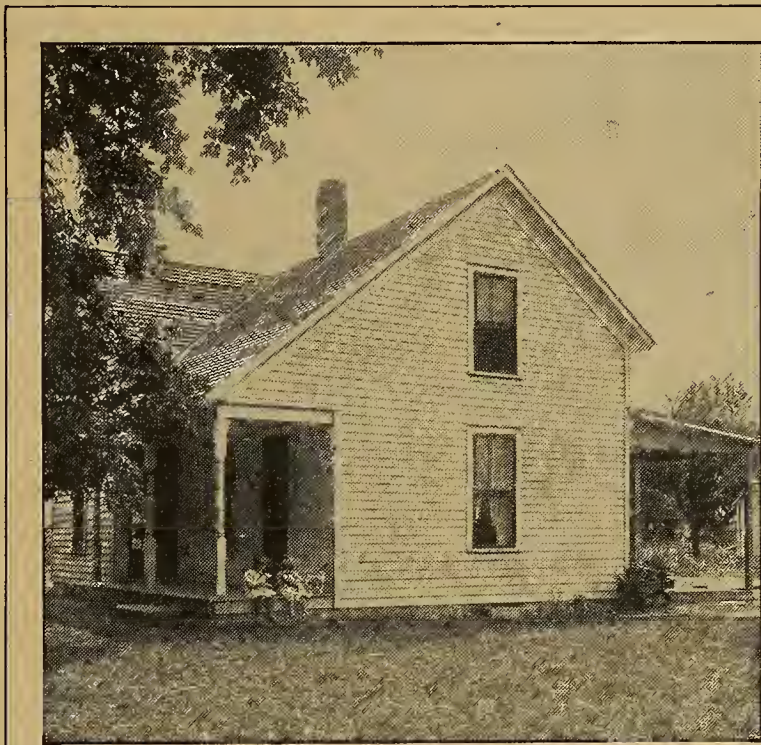
"There is a lot in knowing how to make a farm produce, just as there is a lot in knowing how to get a lot of work out of a team. I can buy an average farm in the corn belt and in five years have it as productive as any farm in that country. Anyone can do the same thing. There is nothing mysterious about it."

In building up the fertility of a farm, Mr. Cavanagh first cleans up the fields. He gets rid of all of the trash, stones, and stumps. He levels off the fields and fills the ditches. The fields are drained if necessary. Then the buildings are repaired. A comfortable house pays big returns in health and enjoyment. Convenient and substantial barns save steps and lower the amount of feed needed for the live stock. Well-made, rat-proof cornercribs and grain bins prevent waste of farm products.

If the young man has acquired enough experience from the men he has worked for, he can feed his grain to stock and market the grain in the form of meat. But if he has not had much experience in fattening hogs and cattle he should go slow. The profits of several years can be lost easily in one year.

Even though the young man has learned the crop rotation and the plan of keeping the farm fertile, he should be studying farm papers, books, and bulletins all the time to keep up with the new ideas that have been tried and found practical. Let the experiment stations do the experimenting for you. Your State has appropriated money for that purpose. You have paid your share of this in taxes, so why risk more money on something untried.

"I should say that the same young men who have a liking for the country as much as they have for the city," concluded Mr. Cavanagh, "will be as great a success on the farm as they will be in town. And in ten or fifteen years will be worth just as much money at least, and possibly more, than if they were in town."



This is the house on his smallest farm. It is comfortable, and pays big returns in health and enjoyment



He builds good, substantial, practical, and serviceable buildings for the people who live on his farms, and for their live stock and poultry, their machinery, and their farm products

FARM and FIRESIDE

THE NATIONAL FARM PAPER

Published Twice a Month by

The Crowell Publishing Company
Springfield, Ohio

Branch Offices: 381 Fourth Avenue, New York City;
Tribune Building, Chicago.

Entered at the Post-Office at Springfield, Ohio, as Second-Class Mail Matter.

Subscription Price

One year (24 numbers), fifty cents. Three years, one dollar. Extra postage for Canada, twenty-five cents a year.

About Advertising

Farm and Fireside guarantees that its advertisers are responsible and honest people, and that its subscribers will receive fair and square treatment. Advertising rates and regulations furnished upon request.

September 16, 1916

The Best-Looking Farm

NOTHING is better worth while than a good "front." Put up some pillars and perhaps a couple of rods of stone or brick wall at the entrance to the farm. If you are in the country where privet will grow well, a privet hedge, provided it is trimmed often enough, will be a good investment, even if it extends along a very considerable frontage and requires real work to care for it. Don't have a hedge of the frowsy sort; don't permit the fences, especially the front ones, to be harbors for weeds.

Manicure the place a bit. The storekeeper in town puts the best and most attractive he has in the show windows. The farmer can mighty well afford to do the same.

And if you're putting up an entrance setting, don't simply hire a journeyman mason to build it. Have it designed by somebody competent to do it, and make it comport with your general situation. The artistic note is a good one to play.

Make the motorists exclaim, as they pass, that "that place is one of the handsomest along this road." Even if you haven't the remotest idea of selling, it'll pay dividends in your pride and self-respect.

Where the Gold Comes From

SOMEbody recently asked: "Whence comes all the gold that is being shipped to this country? How does Europe scratch it up?" The answer came promptly. This country has added about \$500,000,000 of gold to its stock in the last two years, but in that same time the world has produced twice that amount in new gold. Just about a billion dollars' worth of gold is added to the world's stock every two years.

It seems like a big store, and it is. Yet the wheat crop of this country is worth this year more than the world's gold production in the last two years—a good deal more. This country's cotton crop is worth nearly twice as much per annum as the whole world's gold crop. Our corn is worth pretty nearly four times as much as the whole world's gold; sometimes more, sometimes less.

They say that because the countries on the allies' side in the war control about all the world's new gold production they are certain to win. Perhaps that is so; but a better reason is that they have free access to the production of the American farms, which is sufficient to account for their increased activity in every direction.

Land Values Soar

DOUBTLESS there are sections where farm-land prices are now too high, but compared to the whole country they are pretty restricted. Recent authoritative estimates show that the average value of farm lands for the whole country is \$45.55 an acre.

For farms actually in use this is certainly not high. The fancy prices that lands command in favored sections represent not only land but improvements that in many cases stand for a large part of the value. In truth, improvements of the best class get altogether

too little recognition in making up the price of farm property. To call a 200-acre farm "worth \$200 an acre" doesn't convey any real idea. If that farm has an \$8,000 house and \$8,000 worth of other buildings, fences, etc., on it, there is left only \$120 an acre to stand for the value of the bare land. In most cases the buyer appraises the improvements rather under their real value.

The advance in farm values has been almost beyond belief, in recent years. In 1900 the census found the average value for the whole country \$15.57. Ten years later it was \$32.40. In 1912 it was given as \$36.25; in 1913, as \$38.10; in 1914, as \$40.10; in 1915, as \$40.85; and in 1916, as \$45.55.

It is explained that the unprecedented increase in the last year—more than \$5 an acre—has been caused in part by a reaction in the South, following a temporary depression at the beginning of the war, and in part by the stimulus given by war prices for the exportable surplus.

Keep Out Pink Bollworm

HOW the scientists protect agriculture is illustrated by the steps taken by the National Government to keep the pink bollworm from being brought here from Egypt. In 1904 Egypt prohibited imports of American

"Hearts and Hazards"

A FINE young fellow wanted to live on a farm, but he was in love with a spirited city girl. Enter a man from Chicago with polished manners, a smooth tongue, and not too much conscience. Edwin Baird tells the story of the conflict that resulted in "Hearts and Hazards"—a new six-part serial which Farm and Fireside will publish this winter. The old proverb proved right once more and the course of true love was stormy. There were accidents and misunderstandings and in the end—But we must let Mr. Baird tell it his own way.

The author is already known to Farm and Fireside readers as the author of several interesting and sympathetic stories of farm men and women. The artist who illustrated "Hearts and Hazards" is new to our readers, but he has caught the spirit of the actors and sketched them admirably. The first installment will appear in the October 7th issue of Farm and Fireside.

The World's Wheat Crop

THE world was just garnering a record-breaking crop when the war broke out two years ago. The succeeding year it got feverishly busy and did it again. This year there is a distinct retrocession. The wheat crop this year is estimated at 280,000,000 bushels less than last year's, or about 12 per cent. This is enough to account for the sharp rise in prices.

Most of the world's wheat loss is accounted for right here in the United States, which has about 250,000,000 bushels less than in 1915.

Nevertheless, the world's crop is larger than the average for the five years preceding the war. The fact seems to be that the withdrawal of vast numbers of people from ordinary industry, to fight, learn to fight, make munitions and supplies, is now telling on supplies.

There are likely to be two years more of war, according to the authorities, though some think a year may finish it. It will require a long time after peace to redistribute the workers to the most efficient resumption of normal activities. So it may reasonably be assumed that there will be two years more of war demand and prices, and after that a year, two years, or more, of high prices.



"But I tell you I don't like farm life, Mr. Abbott"

Our Letter Box

Getting a Farm of His Own

DEAR EDITOR: I agree with you in advising the young men from the corn belt to first aim at 80 acres of good land, or even 40, in his own neighborhood or county where he is well acquainted with the best methods of farming; then, as circumstances warrant it, secure more acres as the years pass by. This advice is far better than to advise either of the young men to go to a section of cut-over land, far away from relatives and friends, where a complete change of farming is required.

Let me narrate just two examples that prove the above advice correct. The farming population of our county is growing fast and many young men desire farms of their own. Land values also are rising rapidly. Good land that could be bought for ten dollars in 1900 can scarcely be secured now for \$65 or \$70 the acre. Under the circumstances many young men were advised to go to the Far West and secure cutover lands at a low figure, or to the Canadian Northwest. Possibly fourscore young men have gone to those places from our county with the result that most of them have returned either because they did not like or could not stand the severe climate, or did not like the situations and conditions. They returned—but minus much of their savings of many years. Now they have taken the advice mentioned—they have looked about carefully and found a small farm at a price that seemed fair and without burdening themselves with such a heavy debt. For the worry over a very heavy debt will cause more heartaches and even more ill health than many a young man is willing to grant.

The second example is this: Certain families have moved into our county, but they are not making the proper headway in farming they had a right to count on, judging from what they

accomplished in Wisconsin, their former home, and as a result they feel very discouraged at the result of their labor. But as we analyze their meager results, we find a reason. They wish to farm in the same way as they did in the North instead of adopting the best methods of the most successful farmers in their new home. He who thinks he has nothing more to learn in farming is greatly mistaken. This is no grass country and one cannot farm in the same way as one formerly did in the extreme North.

I hold that the proper thing to do for a farmer moving into a strange section of country is to study closely and watch the best methods of the most successful farmers in that section and raise the crops they do, and at the same time try on a limited scale any new crops recommended by the experiment stations in that section of the country.

My advice would be the same that the Editor gave: Let the young men in question look about carefully in their own county for a forty or an eighty, adopt the very best in up-to-date farming, and then add more acres as circumstances warrant.

P. C. HAYNES, North Carolina.

Lamp Dangers in Brief

DEAR EDITOR: Among the most dangerous common practices that cause lamp explosions are blowing down the chimney, filling a lighted lamp, turning it down too low before blowing it out, and using misfit wicks. Blowing down the chimney may drive the flame down into the kerosene and cause an explosion. It may also crack the chimney. Filling a lamp while it is lighted releases the gas in the bowl, and it may ignite.

Turning the lamp down very low before blowing it out introduces some of the hot wick into the kerosene chamber, and when the lamp is blown out an explosion may occur. The proper way to blow out a kerosene lamp is to turn it down about halfway and then blow across the top of the chimney.

A misfit wick, especially one that is too small, allows gases in the bowl to rise, and when the lamp is lighted an explosion is likely to take place. Flaming oil is then thrown over everyone that is near. Another lamp trouble is failure to keep the wick turned down when the lamp is not in use. When the wick is above the burner, oil is drawn up by capillary action and will run down over the outside of the lamp, making it oily and greasy.

B. D. STOCKWELL, Ohio.

Green Corn for Seed

DEAR EDITOR: Just how green corn may be and yet make seed is a matter on which opinions differ. A. N. Hume of South Dakota, one of the best informed corn experts in the country, says: "After corn is really well in the dough stage, so it will not spurt under pressure, it will make seed. In picking it, take the ripest ears first and store them where air will circulate all around. The ears should touch nothing at any point. A good way is to put them on wire hangers out of doors in the sunshine while the days and nights remain warm, and remove them to warm shelter if frost is threatened."

RALPH HOWARD, South Dakota.

A Money-Making Present

DEAR EDITOR: I had always lived in Chicago, where the German women of my acquaintance gave a dinner and presents when one of their number had a birthday anniversary. However, five years ago my husband homesteaded in Michigan, twenty-two miles from town and four miles to our nearest neighbor, and to my regret the birthday-party custom was out of the question. I had asked my husband several times what he was going to buy me, knowing full well that it would be very hard for him to spare the money to buy even a handkerchief. When the morning came he brought me, before I was out of bed, the nicest one of the litter of nine registered Hampshire pigs, a little sow just four weeks old. I was surprised and pleased.

I packed shingles in the mill and did other work to pay for the feed I could not raise. At the fair, when my pig was six months old and weighed 238 pounds, I got first prize. The next spring she had twelve little pigs. I sold six of them at three months old for \$10 each. I bought feed with all of the money.

That summer I raised an acre of carrots. As my sow had ten pigs more I had plenty of feed to winter them on, and they are nearly ready for market. My first sow and the other six of her last year's daughters are keeping me guessing what I am going to do with all the little ones.

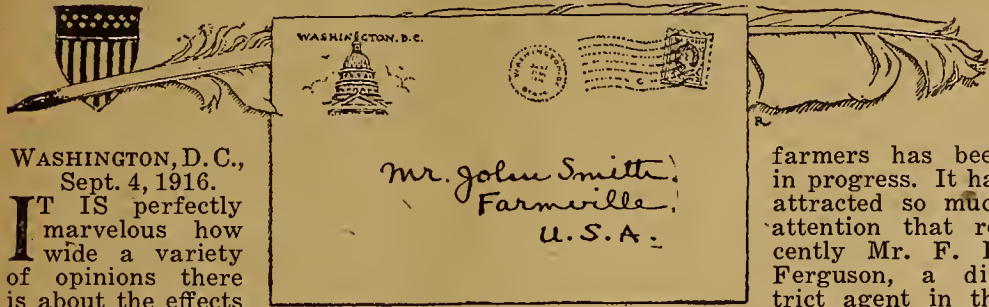
MRS. L. H. CLIFF, Michigan.

EW

No Land Boom

Credit Law Not Likely to Inflate Prices

By JUDSON C. WELLIVER



WASHINGTON, D. C.,
Sept. 4, 1916.

IT IS perfectly marvelous how wide a variety of opinions there is about the effects of the rural credit legislation Congress has passed. Very general satisfaction has been expressed regarding the personnel of the Farm Land Bank Board as named by the President. It is expected that these men will run the establishment with the very strict purpose of making it pay its own way, giving service to the farming community, and providing capital for agriculture on terms at least as favorable as those on which industry and city property get it.

But there are more than a few people who, in the face of demonstrations abroad and here, insist that when you make money cheaper for the farmer you inevitably start a boom in land values, which will counteract the effects of cheaper capital. I have seen some most alarming letters from people right in the States that are going to benefit most from this law. They say that land is already held at such high prices, and that if interest rates on farm security are reduced, it will go still higher, with the result that it will be harder than ever for the farmer to earn returns on his investment.

Of course, this is exactly parallel to the reasoning of people who shook their heads gravely when the self-binder, the steam thrasher, and all the rest of the modern farm implements were brought on the market. They feared that these things would make it so easy and cheap to farm that there would be a rush for the country, overproduction of all the country's products, and a collapse. They could see nothing short of blue ruin ahead for the whole farming business.

It turned out exactly the other way; but there has always been an element which was sure that improved methods would make competition dangerously active. The steam railroad was bitterly opposed by folks who saw in it the germs of destruction to values in horses and toll roads.

It would be hard to make the agricultural population of Ireland believe that cheap money, available to the greatest possible number of farmers, was ruinous. Cheap money has brought prosperity back to Ireland. In this country agricultural prosperity has been distributed just about as the opportunity for getting cheap money has been.

The Central West is not much excited about the new legislation; a good many people there believe it will even do harm, by inflating land prices. But the truth is that the people managing the scheme don't expect to overturn existing conditions where existing conditions are so satisfactory.

ONE thing that is likely to be accomplished under the new plan is an approximation to uniformity in interest rates on farm loans. There will never be literal uniformity among the widely scattered sections of so big a country. That would be unthinkable. But the ultimate security offered to investors under this farm loan plan is a bond that comes pretty near to being backed by the Government. It has the security of expert government supervision.

The law says not over 50 per cent shall be loaned on land values; and that will be mighty strictly enforced. So the bond, whether it is based on mortgages on \$200-an-acre or \$10-an-acre land, will represent ample security in every case, and the rate at which the bonds will sell in the general investment market will tend to gravitate to the same level.

There are regions in the South, according to the testimony taken by the people who devised this plan, where farmers in buying land pay 10 per cent interest and commissions that aggregate as much as 25 per cent. It seems incredible, but it is a fact. That sort of thing is going to be discouraged, because the new law is going to be operated especially with the view to benefiting the sections that most need its help.

At Snyder, Oklahoma, for several years a practical demonstration of the possibilities of co-operation among the

farmers has been in progress. It has attracted so much attention that recently Mr. F. F. Ferguson, a district agent in the government co-operative demonstration work, made a detailed report on it.

The farmers' ginning company was formed in 1906, and two years later owned two gins, but owed \$14,000. Reorganization was necessary. The two gins were sold and the debts paid, leaving the concern with a warehouse and some lots worth \$2,150.

Then the shareholders subscribed \$2,000 new capital, paid in cash, and borrowed \$2,500 at a bank. They bought a complete ginning outfit, bringing the total property value—machinery, warehouse, and land—up to \$10,959.60. The capital stock remained at \$4,150, so the concern owed \$6,809.60.

From this reorganization the concern was profitable. Practically the whole debt has been paid, and in the last ginning season receipts were \$13,160.20, on total expenses of \$7,665. The net earnings were \$5,485.20 in that single year. Incidentally, of course, the operation of such a farmers' plant in the community was the best possible guarantee against excessive charges by private enterprises.

Co-operation in ginning, milling, buying grain, elevators, threshing outfits, ownership of road machinery, heavy trucks for hauling, tractors, and a constantly increasing share of the operations of agriculture is on the increase to a much greater degree than is generally appreciated. The next general study of this subject is likely to be made in connection with preparation of the census of 1920; there is a movement to have it included in that work. It is going to show a rapid increase of interest and also of actual experience.

WITH a good deal of confidence the authorities at the Department of Agriculture declare that the country has passed the crisis of the hog-cholera scourge. The present is a "good year" for cholera; losses are smaller and the disease is being more successfully dealt with than ever before.

Cholera has come and gone in waves for decades past. It came to this country from Europe, where experience with it has been much longer, but where the same conclusion is reached concerning it. Probably it was brought here with importations of either hogs or feed that came with thoroughbred stock.

At any rate, it has had a period of eight, nine, or ten years, which would mark the interval between high loss ratios. Two or three years ago the losses were tremendous, and at that time the States, the Federal Government, and; more important than anything else, the better farming methods among the great multitude of farmers brought to bear a vast amount of general experience and scientific knowledge, in an effort to devise means to suppress it.

The results are now showing. There is no doubt that there will come times when losses will be very serious, and the crest of the wave will be pretty high. But the expectation is that every successive loss wave from this time forth is going to be less destructive, and that the periods between the extreme seasons of great losses will be longer.

The ancient superstition that regarded cholera as a visitation in punishment of sins, or as a reminder that we are a meek and lowly humanity after all, is played out. People don't regard cholera as inevitable, like eclipses or elections.

They don't lose their nerve when they see it coming. Rather, they get out and fight it. They have learned how it is disseminated, and greater sanitary precautions both in raising and in marketing hogs have served an important part.

Then, too, the States have established a control over the manufacture and sale of serum, and are co-operating with the federal authorities in this regard to such extent that it is no longer a mystery or an impossible extravagance to have a herd of hogs treated. Uniform prices for the serum are being widely established, and they are closely related to the prices that the States and the national stations fix in producing it.

More important, [CONTINUED ON PAGE 11]

Performance Too Phenomenal To Be Believed

Hupmobile is 99 Per Cent Efficient, Say 11,000 Owners

HUPMOBILE history—day by day—all over America, bristles with astonishing incidents. With dealer and owner alike, the unusual is usual.

Thus, in Rochester the other day, the Hupmobile dealer was actually suspected of putting picric acid, or ether, or some other "stimulant," in the gasoline.

*He Saw It Done—
Yet Didn't Believe*

The engineer of a public service corporation recorded his opinion that the high gear performance of the Hupmobile was "impossible," even after he had seen it. So he demanded a second test.

"This time," says C. E. Hartson, the dealer, "he even watched us fill the tanks with gasoline, oil and water. We went out and beat our first demonstration. He wanted a third test, driving the car himself. We gleefully consented.

"He gave his order, and," says Mr. Hartson, "you ought to hear him talk Hupmobile against sixes, eights and twelves now."

*The Good Samaritan
of the Sand Patch*

Near Sherman, Mississippi, are two of the most unique road signs in America. They were erected by a farmer whose home faces the worst mile and a half of sand in the state.

The signs tell passing motorists that the farmer will gladly pull them through the sand stretch with his Hupmobile.

He erected them in a burst of enthusiasm after he bought a

Hupmobile Points to Remember

PERFORMANCE—A high-gear performer in the usual low-gear situations.

COUPON SERVICE—Regularly each month for eight months free labor, inspections and adjustments, at more than 5000 authorized Hupmobile service stations in the United States and Canada.

ECONOMY—In line with the well-known Hupmobile repair cost record of 1/4 cent per mile. This is real economy—maintenance economy. Car is easy on tires, fuel and lubricant.

5-Pass. Touring Car \$1185
Roadster \$1185
7-Pass. Touring Car \$1340
Prices f. o. b. Detroit

Hupmobile which negotiated the mile and a half with ease on high gear.

*On Kansas Hills
and Nebraska Roads*

Nebraskans don't boast much of their roads. But the Hupmobile finds no difficulty in covering 139 miles of them in 3 hours. Nor 389 miles of such roads as Iowa has in December, in less than 10 hours.

Eleven thousand Hupmobile owners have rated the Hupmobile 99% efficient.

Of these 50 8-10% buy one Hupmobile after another.

In other words, more than half of all Hupmobile owners keep on buying, year after year. They change the model, but not the make.

And while these have remained true to their choice—another 24 2-10% of Hupmobile ownership has come from those who have owned cars of higher price.

Isn't this evidence clinching, convincing and conclusive?

The nearest Hupmobile dealer will gladly demonstrate Hupmobile performance for you.

Hupp Motor Car Corporation
1334 Milwaukee Ave.
Detroit, Michigan

Hupmobile



Red Side Wall and Black Tread The Trade Mark of Firestone TIRES

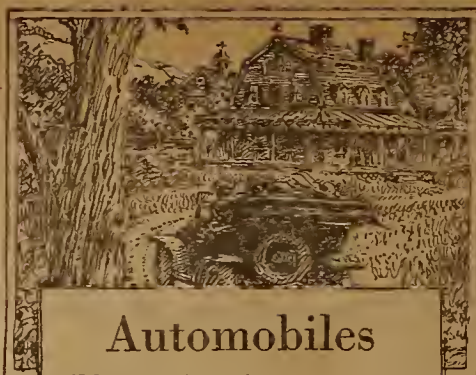
This exclusive color combination is the result of long experiment to develop a tread of extra thickness without extra weight. This reduces strain on the body of the tire and means longest life to the fabric.

Increased toughness is another advantage which results in further added mileage.

In addition to these practical values, Firestone equipment gives elegant appearance and harmonizes with any car.

FREE OFFER—For your dealer's name and make of your tires we will send you, free, a Firestone Cementless Tube Patch. Also Free Book, "Mileage Talks," No. 45.

Firestone Tire and Rubber Co.
"America's Largest Exclusive Tire and Rim Makers"
Akron, O.—Branches and Dealers Everywhere



Automobiles

Lubricating Oils

By B. D. Stockwell

I HAD heard the admonition "The best is the cheapest in the end" as often as anyone. But experience had taught me that a good average grade of most articles was the most economical "buy." So shortly after I bought my car, gasoline being high, I decided to keep down my operating expenses by getting a medium grade of oil.

Accordingly, when I found oils to vary in price from 30 to 80 cents a gallon I decided to try a 45-cent oil, and bought five gallons of it. Nor did I rely entirely on my own judgment. I was informed by my dealer that he sold lots of it for my make of car and had never had any complaint. The car ran nicely, but I noticed that for every ten gallons of gasoline the car consumed I used over half a gallon of oil.

But my dealer said that was about the average experience, and so I dismissed the matter from my mind. Several months elapsed and I was getting good satisfaction from my car, except the occasional fouling of a spark plug when I made a longer trip than I had expected and found my oil was getting low. I accordingly stopped at the first garage which from its appearance appeared first-class and got half a gallon of oil, paying 30 cents for it. This oil was added to the old oil in the crank case and I started on my way.

Imagine my surprise when my car started off with a spirit I had never noticed before. On the return trip it took the hills like a bird, and with the throttle set back a notch it made my usual running speed on level ground. On one particular hill that is the terror of the touring public I made a better showing than I had ever been able to get from the car.

Cuts Oil Consumption in Half

The next morning, on consulting my oil gauge, I found the car had used but half its usual consumption of oil, and the truth began to dawn. The small amount of good oil that had cost at the rate of 60 cents a gallon had been responsible for the good results observed the day before, and the oil wasn't "burning up" so fast.

A few days later I mentioned the incident to a local automobile dealer. "We pay a dollar a gallon wholesale for the oil we use in our demonstrating cars," he remarked, "and we get some wonderful performances. But it doesn't do any good to tell the average automobile owner to use high-grade oil. He'll pay good money for a nice-looking automobile and get the best tires because they add to the looks of the car, but you'd be surprised to know how stingy he is about lubricating oil."

"There are lots of cars running around that are using oil that doesn't cost over 25 cents a gallon. Those are the cars that are always fouling their

spark plugs and filling up with carbon. When all oils look about the same, it's hard to convince a man that there's much difference in the lubricating qualities or lasting qualities. Personally I prefer a 65-cent oil" (he mentioned the trade name) "and a five-gallon can lasts me about six months."

Here is another incident: A hardware dealer had purchased a nice seven-passenger touring car and had learned to run it. So one beautiful day he invited his friends to take a ride. The oil in the car had been nearly used up during his lessons, so he poured in some ordinary gas-engine oil that he had at the store. He started out proudly, but had gone less than a quarter of a mile when the engine stopped. It failed to respond to priming and the usual methods of starting.

Finally he phoned for a service car, which towed him to the garage. The spark plugs were found to be loaded with soot, but when the crank case was drained and cleaned and new oil put in he was soon on his way.

What Good Oil Does

A good automobile oil must answer the following requirements: Must not evaporate through the greater orifices. Must be thick enough to prevent pistons from "seizing," and thin enough to give the rated horsepower. Must leave behind the least amount of carbon. Must remain liquid in freezing weather. Must be durable and reduce friction to the lowest possible amount.

Some motors, especially of the splash type of lubrication, require the same oil to do its work at temperatures ranging from 1,000 degrees at the piston head down to 150 degrees in the crank bearings. Thus a good oil must be the result of many tests and experiments.

Most motor-car users buy oil in five or ten gallon lots, but if you have not been getting perfect satisfaction or have been using an excessive amount of oil, it is a good plan to try a gallon each of different kinds until you find a good one.

Low-grade oils turn black quickly, and show a heavy sediment. Some of those which show low resistance to heat contain sulphur compounds which are decomposed by the heat into a number of chemical substances one of which is sulphuric acid. It is so dilute that its effect on bearings may be considered negligible, but the pitting of exhaust valves and their seats is due largely to the hot sulphuric-acid fumes.

Carbon deposits on the cylinder walls and piston heads may be reduced to a large extent by taking care not to keep the oil level in the crank case any higher than is needed to secure good lubrication, also by using an oil of suitable body, not too light nor too heavy. Either one is objectionable. Carbon trouble and a dark exhaust when observed together indicate too light an oil. You are also likely to have loss of power due to too thin a seal around the piston rings.

Some oil companies publish lists of the different makes of automobiles and the oils suitable for each, both winter and summer. But cars even of the same make differ somewhat in their oil requirements, and the best method is to try a gallon or two of the kinds recommended as most suitable. To do this, first drain off the old oil in the crank case. Flush out with kerosene, running the engine half a minute under its own power, put in the fresh oil, and watch the result on the hills, in speed and in gasoline consumption.

EDITORIAL NOTE: Questions relative to lubrication or other automobile problems will be gladly answered by the Automobile Editor, FARM AND FIRESIDE, Springfield, Ohio.

BUY A FARM
in the
NATION'S GARDEN SPOT
VIRGINIA, North and South CAROLINA
GEORGIA, ALABAMA and FLORIDA

Land is reasonably cheap, and soil and climate just right for gardening, fruit growing, poultry, live stock, dairying and general farming.

**ATLANTIC COAST
LINE RAILROAD**

Information and descriptive literature free.
G.A. Cardwell, Desk B | Wilbur McCoy, Desk B
A. & I. Agent, | A. & I. Agent,
Wilmington, N. C. | Jacksonville, Fla.

FREE
**SPLIT
HICKORY**

Just drop me a postal and I will mail you my big new catalog showing 150 stunning styles of Split Hickory Vehicles. Famous for beauty, lightness, strength, and long service. I give

30 Days' FREE Road Test
and 2 years' guarantee. Now I have split the price to save you \$20 to \$40 on your new rig. Catalog explains how. Write for big free book today. Address
THE OHIO CARRIAGE MFG. CO.
H. C. Phelps, Pres.
Station 43 | Columbus, Ohio

My Big New Buggy Book

Catalog shows 150 other styles **\$39.25** from



A high-quality lubricating oil lessens pitting of the exhaust valves, makes a tight seal around the piston rings, and often adds 10 per cent to a car's hill-climbing ability

and competition is less keen for them, hence the price is not as high."

"But sometimes heavy steers sell highest?"

"Only when there is a shortage of them." Retail butchers want small quarters of beef, except in some of the big shops. They can get rid of the small quarter more quickly, and can handle it more cheaply and with less waste, especially in hot weather."

To the consumer, baby beef does not run into money as fast as big beeves. Even at first-class hotels and restaurants, and on dining cars, it is easier to sell a steak at 75 cents than one at \$1.25. Of course these places want the big roasts, but the provider of a moderate-sized family is a willing buyer of a small roast of choice flavor where he would hesitate to buy either a big roast of equal grade from a large animal or a smaller roast of inferior quality.

There is one point about producing baby beef that should not be overlooked, and market papers mention it frequently, lest it be overlooked, and that is that poorly finished baby beef is less wanted than half-fat heavy steers. While prime finished yearlings sell at a premium over prime heavy steers as a rule, poorly finished yearlings sell at a discount in comparison with heavy steers of equal finish.

No Land Boom

[CONTINUED FROM PAGE 9]

perhaps, even than this, is the tendency among veterinarians to establish regular and moderate prices for treating hogs. In at least one important hog-raising State there is now a general arrangement that fixes 10 cents as the veterinarian's rate for treating a hog.

There isn't a township in this country now that is under quarantine for the foot-and-mouth disease. On the other hand, reports come from Europe that are not encouraging as to conditions there. The war has imposed some very difficult conditions, and the live-stock industry in this country will benefit for years to come from the misfortunes of Europe.

Just about the same time that the foot-and-mouth trouble broke out here, there was an outbreak in Denmark of unusual violence. In general, European live-stock countries are never free from the disease. Their cattle are so tremendously important to the farmers that it would never do to adopt the American plan of deliberately exterminating every infected herd. Germany has had a particularly hard experience since the war started.

There had been a most disastrous epidemic in Germany which was just being brought under control when the German armies swept into Poland and the Russian Baltic provinces, over a year ago. From that conquest they sent back into Germany hundreds of thousands of head of stock, which Germany greatly needed. But the military authorities were not as wise as they should have been.

Foot-and-mouth disease was almost universal, especially in Poland, and in a pretty virulent form. The bringing in of these cattle spread the disease all over Prussia, and to a considerable extent into other parts of Germany. Besides, it was carried into sections that had not particularly suffered from it.

Between the ravages of this disease and the tremendous pressure for milk and meat supplies, Germany has fearfully reduced its live-stock capital; nobody yet knows to what extent, but it is considered very certain that when the war ends, every stock-raising country in Europe will be in the market for the right kind of animals for breeding purposes, and this will include horses as well as hogs, sheep, and cattle.

The demand for meat products of all kinds will also be enormous, because already measures are being inaugurated to conserve the home supplies of stock fit for breeding, in order to restore the normal numbers of stock of all kinds. So it may be expected that there will be a big expansion of foreign demand for both meat and live animals.

Lost People

FRED FIELDS, formerly of Wellsville, Kansas, was last heard from thirty years ago, when working for the railroad in southeastern Kansas or southwestern Missouri. He was either telegraph operator or station agent. Address A. D. Davidson, Stevenson, Washington.

GEORGE PRINCE, missing for twenty-three years from his home in Tennessee, and thought to be in Alabama, was advertised for in the January 1st issue. On January 5th FARM AND FIRESIDE received three letters, one from George Prince himself at Hot Springs, California, and two others from Western States, telling where he is.

Twice What You Require in the Hudson Super-Six

Records Prove Power and Endurance

What Power is Wanted?

THE HUDSON SUPER-SIX is a light car, as a modern fine car must be. In ordinary driving 40 horsepower would be ample. That's what motors of this size heretofore developed.

But the Super-Six—our patented motor—delivers 76 h. p. Yet we add no size, no cylinders. We don't increase fuel consumption. We have simply lessened vibration, reducing friction to almost nil. And we thus save the power that was wasted.

That extra reserve power means much on hills. It means much in flexibility and in quick response. It saves much changing of gears. Would you want an engine of equal size which lacked it?

What Speed is Wanted?

The Super-Six speed records—quoted below—have never been matched by a stock car. You perhaps don't want such speed. We made those records to prove the motor's supremacy. Also to prove its endurance.

But they mean that in ordinary driving you will run the Super-Six at half load. And that means a long-lived motor.

What Endurance is Wanted?

Nobody knows how long a high-grade modern car will last. All we can do is to compare the endurance by extreme and prodigious tests.

A Super-Six stock chassis was driven 1819 miles in 24 hours, at an average speed of 75.8 miles per hour. The same car previously had been driven 2000 miles

at average speed exceeding 80 miles an hour. No other car ever has matched that endurance test. It would take five years of pretty hard driving to equal those top-pace strains.

But this Super-Six motor, after all those tests, showed no appreciable wear whatever. So the Super-Six is likely to last years longer than any man expects.

What Luxury is Wanted?

You find in the Super-Six all the beauty and luxury that we know how to put in a car. You find a luxury of motion—due to lack of vibration—which you never before have experienced.

You will find fine engineering, with all the satisfaction that comes of it. For this is the crowning effort of our great engineering staff, headed by Howard E. Coffin.

You will find pride of ownership which comes from owning a car of the Hudson repute. A car which outrivals other cars in performance. A motor which by every test holds unquestioned supremacy.

Where else can you find what you find in the Super-Six? Or anywhere near what you find here?

You will find fine cars and great cars, according to former standards. But the Super-Six invention has set some new standards. And Hudson controls that by patent.

Think of these things when you buy a new car. Prove up the differences by road comparison. If you are buying a fine car, and buying to keep, you don't want a second-place car.

Some Hudson Records

All made under American Automobile Association supervision by a certified stock car or stock chassis, and excelling all former stock cars in these tests.

100 miles in 80 min., 21.4 sec., averaging 74.67 miles per hour for a 7-passenger touring car with driver and passenger.

75.69 miles in one hour with driver and passenger in a 7-passenger touring car.

Standing start to 50 miles an hour in 16.2 sec.

One mile at the rate of 102.53 miles per hour.

1819 miles in 24 hours at average speed of 75.8 miles per hour.

Phaeton, 7-passenger	\$1475	Limousine	\$2750
Roadster, 2-passenger	1475	Limousine Landaulet	2850
Cabriolet, 3-passenger	1775	Town Car	2750
Touring Sedan	2000	Town Car Landaulet	2850

All prices f. o. b. Detroit



HUDSON MOTOR CAR COMPANY
DETROIT, MICHIGAN

Free Book Tells How

you can break stumps to bits, shatter big boulders, make deep ditches, prepare tree beds, blast the subsoil, and how you can do many other kinds of farm work at a saving of time, labor and money by using

Atlas Farm Powder
THE SAFEST EXPLOSIVE
The Original Farm Powder

made especially for agricultural work and sold by dealers everywhere. Write today for 74-page, illustrated book, "Better Farming."

Atlas Powder Company
Dept. FF27, Wilmington, Del.

Better Farming
with
Atlas Farm Powder

Wanted 30,000 Men
For Harvest Work on Immense Crops of
Western Canada

Wages \$3.00 Per Day and Board
Cheap Railway Rates From Boundary Points

Employment bureaus at Winnipeg, Regina, North Portal, Saskatoon, Ft. Frances, Kings Gate, B. C.; Coutts, Calgary, Alberta.

No Conscription—Absolutely No Military Interference

For all particulars apply to the following Canadian Government Agents.

M. V. McINNES, 178 Jefferson Ave., Detroit, Mich.
W. S. NETHERY, Interurban Bldg., Columbus, Ohio

We guarantee that every subscriber will receive fair treatment from advertisers. It therefore pays you to mention Farm and Fireside in answering advertisements.

WRIGLEY'S

Largest Selling Gum in the World

Hot work on a hot day makes a man appreciate the delicious, cooling, lasting taste of mint!

WRIGLEY'S comes in two mint flavors: Spearmint and Peppermint.

Always fresh, full-flavored and clean in its moisture-proof package.

The WRIGLEY way is to make it right and seal it tight.

Send for free copy of funny "Mother Goose" book in colors by the quaint Spearmen.

WM. WRIGLEY JR. CO.
Kesner Building
Chicago



Allays thirst
Protects teeth
Helps appetite
and digestion

WRAPPED
IN
UNITED
PROTECTOR
COUPONS

5130

**The Clothcraft Blue
Serge Special—5130
—\$16.50.**

Because "5130" is the largest selling suit in America the makers have been able to put into it this unusual value. Because they have put into it this unusual value, "5130" is the largest selling suit in America.

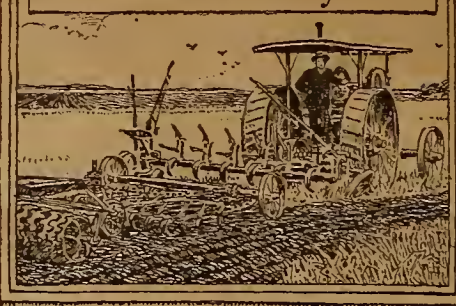
SERGE SPECIALS
"5130" Blue, \$16.50
"4130" Blue, \$20.00
"3130" Gray, \$20.00

**THE CLOTHCRAFT STORE
IN YOUR TOWN**

Clothcraft Clothes for Men and Young Men, Ready-to-Wear, \$12.50 to \$25.00

Made by The Joseph & Feiss Co., Cleveland

Machinery



Sulky-Plow Experience

By Daniel Prowant

IT IS remarkable how new inventions in farm machinery are looked at with disfavor at first and come into general use a few years later. I remember some ten years ago when I saw a sulky plow in use for the first time. I called it a "lazy man's plow." I remarked that I wanted nothing to do with such a machine.

To-day I am using one myself, and other farmers who did not at first take to sulky and gang plows are now using them also. Gang plows are not as popular here as the sulky, as it takes too much horsepower to pull them, but they are used to some extent with tractors.

To a man accustomed to an ordinary walking plow, the sulky plow will seem rather awkward for a day or two, but after he learns to operate it properly it handles very well.

There are, I find, a good many advantages in a sulky plow not found in an ordinary breaker. In the first place it saves the man. He can walk or ride as he chooses. I prefer to walk in cold weather.

More land can also be turned in a day with a sulky plow, and a more uniform job can be done, as the plow locks in the ground and cannot be thrown out or pushed aside by every small root or stone. It plows the ground to a uniform depth, something that is not easy to do with a walking plow.

To Plow a Straight Furrow

In starting a land with a sulky plow I run it pretty deep. If one wants straight furrows special care must be used to get the land started straight, as after a crook is formed it is very hard to straighten it out and do a good job of plowing with a sulky plow. I start the land and plow off the ends with the sulky plow, but do not plow the land entirely off. It can be done, but not very satisfactorily. A better job can be done by leaving about three or four furrows, and plowing these off with a walking plow.

We use a foot-lift plow, which is, I think, a little more convenient than a lever-lift plow. When walking it is not necessary to get on the seat at each end of the furrow to raise or lower the plow, as might be supposed. I trip the plow with my foot to raise it, and to set it I trip again, and then lift up on the foot lever.

The plow runs into the ground to the proper depth as soon as the team is in motion. All working parts must be kept well oiled when in use. When the plow is not in use I put it under shelter the same as any other farm implement. Nowadays nearly all sulky and gang plows are equipped with the rolling or disk style cutter. The cutter should be set to cut about one-half inch outside the plow to insure a clean-cut furrow free from crumbs. It also lightens the draft.

Roomy Wheelbarrow

By R. E. Rogers

WE HAVE found an improvement over either the old side-board wheelbarrow or the half-barrel-shaped. The wheelbarrow illustrated was originally one of the half-barrel kind.

When the old body wore out I just sawed the projecting standards off and put this box in its place. It is 28 inches long, 34 inches wide, and 7 inches deep. The rear end is hinged at the bottom and fastens at the top so it stays either up or down—not halfway.

You will notice that the axle bolts are close to the bottom of the end of the handles. That prevents splitting the handles from a heavy load. The box was made from part of a dry-goods box that cost a quarter. It is made solid by small corner posts and a perpendicular piece in the middle of the front.

The box was made wide enough to go easily through any of the hand gates on



This home-made box built at small expense made the worn-out wheelbarrow more useful than before

the farm, and also in the hen house when we load barrow with droppings.

We can push two or three crates of berries, onions, or potatoes in this barrow without having them all slide to one end or side.

Popular Implements

CENSUS figures between 1909 and 1914 show a marked increase in certain farm implements. Corn huskers and shredders and corn and bean harvesters show the greatest amount of increased popularity.

Other implements showing a gain in public favor are grain drills, spring-tooth harrows, and grain harvesters.

Tougher Than Mules

By Raymond Olney

A FARMER operating a large farm in Illinois tells how a newly purchased tractor helped him solve a problem which he had been unable to handle satisfactorily with animal power.

He had sowed cowpeas on an 80-acre tract, and expected to put on a carload of phosphate and plow the whole thing under for the wheat crop to be sowed in the fall. On account of the season being very wet, a rank growth of weeds and peas, about five feet high, covered the entire eighty.

His troubles began when he attempted to spread the phosphate by hitching a four-mule team to the spreader. The peavines and weeds scratched the mules' legs so that they were soon swollen to twice their natural size. He then tried four other mules with the same result.

About this time his new 8-16 horsepower tractor was delivered. He hitched it to the lime spreader and sowed the phosphate without further trouble.



I walk or ride as I choose. Either way a sulky plow works at a uniform depth, an advantage not found in walking plows



Live Stock

Selecting Feeding Cattle

By W. L. Blizzard

MUCH of the success in feeding purchased stock depends upon the selection of the animals. Even the most skillful management and best of feed and care cannot make profit out of badly selected steers. When one has raised his own steers from good breeding stock, he knows how to treat them for best advantage and what to expect, but a keen eye and good judgment are necessary to enable one to select strange stock that will make profit in the fattening.

For long feeding, thin steers are usually preferred, as they are more cheaply purchased and one has more opportunity to control their progress. It is advantageous that they be as nearly uniform in color as possible, as they then present the best appearance when fat. A wise feeder remarked, "One sells his cattle when he buys them." The good ones are always in demand. Poor ones, sometimes known as "tail-enders," are invariably a disappointment and a loss to all who handle them.

The block is the supreme and final test of the beef animal. The butcher desires an animal that will deliver the highest percentage of good cuts and show refinement in the parts that are not edible, in order to reduce waste.

In general form the select feeder is low-set, deep, broad, and compact. Their top and under lines should be straight and nearly parallel. One should look for as much smoothness as is consistent with thinness. Too great prominence of shoulder, hips, and tail head should be avoided, as should rough, coarse heads set with small, dull eyes. A good feeder possesses a short, broad head and short, thick neck and short legs. A large, prominent, and bright but mild eye is very desirable, as it indicates vigor as well as quietness of disposition, and these are both essential to well-doing. A good, strong, heavily muscled jaw with muzzle, lips, and mouth large without coarseness, together with symmetry of outline or balancing of parts, are very important points in selecting steers. By symmetry is meant a general uniformity throughout, with no part out of proportion with any other part. Depth of chest should be balanced by depth of twist and width of shoulder should be accompanied by width throughout.

It is important that a feeder possesses that characteristic difficult to describe known as quality. This is of two kinds—general and handling. The former is closely allied to breeding, and is quickly noticed by the trained eye. Good handling quality indicates thrift, which is dependent upon good health and vigor.

It shows itself in a mellow but moderately thick and loose skin, a thick and soft coat of hair of medium fineness. A steer that possesses the qualifications already described will almost assuredly have a vigorous constitution. It is well, however, to see to it that he has a wide, deep chest, fullness in heart girth, and good spring of rib. Such feeders as have been described are not the most plentifully offered, but in buying, one should secure the best available at the best price.

The Horse's Shoulder

By Dr. William P. Shuler

WHEN the farmer values his horses by their capacity for work, nothing should go unnoticed that will in any manner reduce their efficiency. The care of the shoulder, therefore, is of great importance and must not be neglected. As the dry season arrives, dust and dirt accumulate under the collar or pad and, mixing with the perspiration, form crusts in the hair, which irritate the skin by continual friction, and gall the shoulder from the withers to the lowest point of collar pressure.

This material also accumulates on the mane, and is literally ground into the flesh by the end of the day. The mane should be kept from under the collar.

When your animals are resting at the end of the field, inspect their shoulders and readjust the collar, at the same time wiping it dry with a cloth.

Galled areas may be treated by washing with the following preparation diluted with an equal volume of water and applied directly to the afflicted parts: Lead acetate, one ounce; zinc sulphate, six drams; water to make sixteen ounces.

Mix and shake well before using. Collar boils and so-called "sit fasts" or callouses are the direct result of neglect to recognize and care for the primary galled area, and must be treated surgically and the animal turned to pasture until recovery is complete.

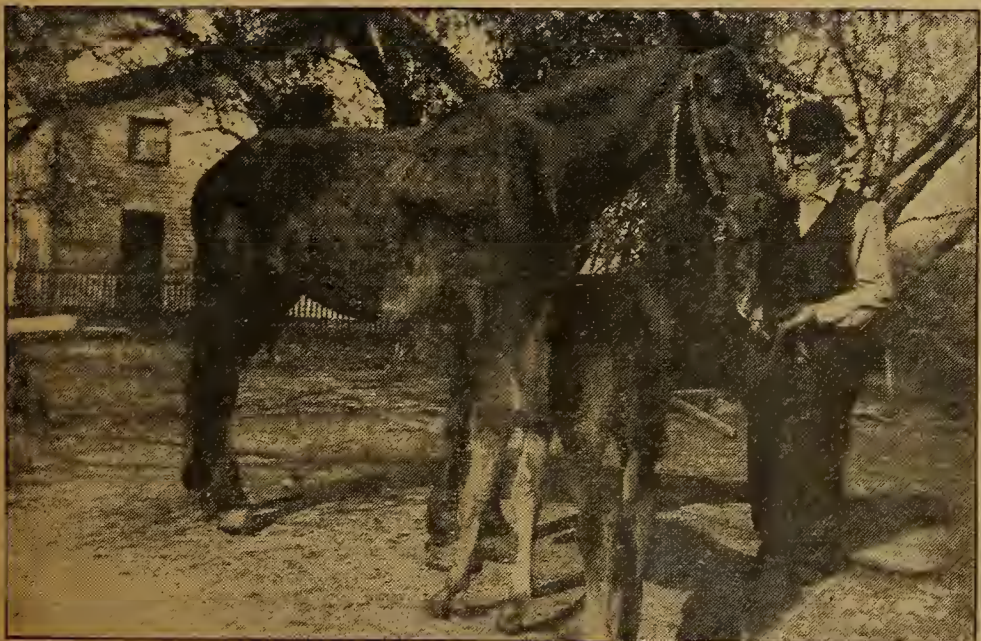
Making Rapid Hog Gains

IN EXPERIMENTS recently conducted at the Missouri Experiment Station and published in Bulletin 136 it was found that more rapid gains were made by hogs fed tankage in addition to wheat or corn or both than if the tankage was omitted. Whether the gains were more economical depended on the quality of the tankage and the price it was necessary to pay for it. If part or all of the grain ration was wheat, the gains were both more rapid and more economical than if corn was the only grain fed.

For the 120-day feeding period the wheat-fed hogs made an average daily gain of one pound and a quarter a head a day as compared with one pound for the corn-fed hogs. It required 582 pounds of corn for every 100 pounds gained, but only 483 pounds of wheat. Apparently the more exclusively the ration was made up of wheat the more efficient it was, for a mixture of equal parts of wheat and corn proved more efficient than corn alone, both for low cost of gains and for rate of gain, but the mixture was less efficient than wheat.

Tankage added to the feed increased the rate of gain and reduced the amount of grain required to produce 100 pounds of gain. This increase in gain was much more pronounced, however, during the first 78 days of the 120-day feed than during the last 42 days. Results indicate that it would be profitable to supply tankage to fattening hogs for the entire feeding period when corn was used, but only for the first 78-day period when wheat was fed. While the addition of tankage to the wheat ration increased the rate of gain during the last 42 days of the 120-day feeding period, this increase was hardly enough to warrant the increase made in the price of the ration due to the addition of the tankage.

While dipping is the most thorough method of killing certain animal parasites on hogs, there are other ways that have merit. Concrete hog wallows do well for summer, but for fall and winter hog oilers and sprayers can be used to advantage. The oilers and sprayers are inexpensive.



This sixteen-year-old mare, owned by an Indiana horseman, has foaled twelve colts. Her twelfth offspring, shown in the picture, is one month old

Get Rid of Worms!

Many animals, especially hogs, are troubled with worms. When your hogs are unthrifty, you hear a little cough now and then, suspect worms.

Dr. Hess Stock Tonic

Keeps Hogs Healthy

Expels Worms

So sure am I that Dr. Hess Stock Tonic will keep your hogs healthy and expel the worms, that I have authorized my dealer in your town to supply you with enough Tonic for your hogs and, if it does not do all I claim, just return the empty packages and get your money back.

My Stock Tonic is not a feed, but a true conditioner and tonic, highly concentrated, which contains blood purifiers, laxatives and drugs which are powerful worm expellers. Feed in small quantities, watch your hogs improve.

NEVER PEDDLED. SOLD ONLY BY DEALERS. 28,000 reliable dealers in U. S. handle it. Why pay the peddler twice my price?

25-lb. Pail, \$2.00; 100-lb. Drum, \$6.50

Smaller packages as low as 50c (except in Canada and the far West and the South). Valuable stock book mailed free, if you write for it.

DR. HESS & CLARK, Ashland, Ohio

Dr. Hess Poultry Pan-a-c-a

conditions fowls, makes hens lay and is a great help at moulting time. Valuable for chicks, for pullets starting to lay and for all grown fowls. Costs a penny for 30 fowls per day. 1 1/2 lbs., 25c; 5 lbs., 60c; 12 lbs., \$1.25; 25-lb. pail, \$2.50 (except in Canada and the far West). Guaranteed.

Dr. Hess Instant Louse Killer

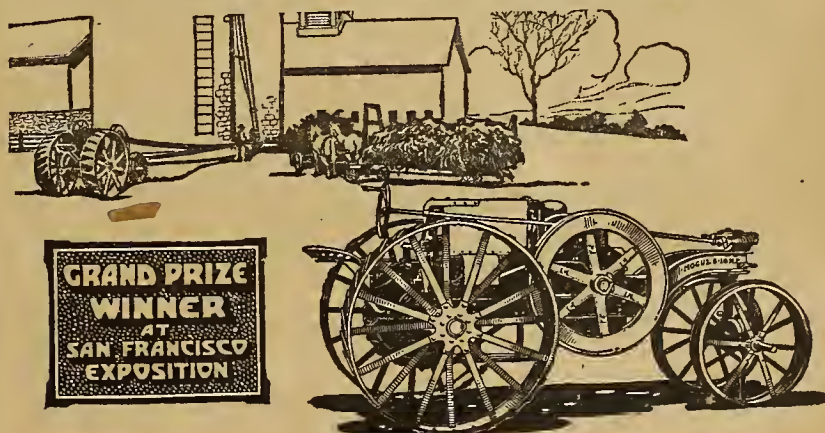
A reliable lice killer, very quick acting. For use on poultry and stock. Use by dusting and sprinkling. Destroys bugs on cucumber vines, cabbage worms, slugs on roses. In handy sitting-top cans. 1 lb., 25c; 8 lbs., 60c (except in Canada). Guaranteed.



Write Dr. Hess about any sick animal or live stock trouble, enclosing 2c stamp. He will advise you free.

Mogul 8-16—A Real Kerosene Tractor

Sells for \$725 Cash f. o. b. Chicago



GRAND PRIZE WINNER AT SAN FRANCISCO EXPOSITION

WHEN you buy a tractor, look beyond the price. It is not the price a man pays for a tractor which is of the most importance, but what its power costs. A Mogul 8-16 burning kerosene, in 5,000 hours of work, will save more than its original price over the cost of the same power produced by a gasoline tractor. Remember, the 8-16 is a real kerosene tractor, planned and built originally for using this cheap, plentiful fuel. Price is of minor importance compared with Mogul 8-16 saving.

It is our policy to sell the Mogul 8-16 at the lowest possible price, always maintaining Mogul quality, though nowadays some of the materials are almost unobtainable even at an advance in price of from 50 to 100 per cent over the prices of a few months ago. \$725 cash f. o. b. Chicago is the lowest price at which Mogul 8-16 can be sold.

Orders placed at once will stand the best chance of being filled without delay. See the Mogul 8-16 dealer or write us for the story of kerosene before you buy any tractor.

International Harvester Company of America

(Incorporated)

CHICAGO

USA

Champion Deering McCormick Milwaukee Osborne Plano



DU PONT

RED CROSS FARM POWDER

The Original and Largest Selling Farm Explosive

Why use expensive high speed dynamites when this slower, safer farm powder will save you from \$3 to \$5 per hundred pounds and in most farm uses do better work?

BIG BOOK FREE

As pioneers and leaders in developing farming with explosives our booklet gives the latest, most reliable and best illustrated instructions. Write for **HAND BOOK OF EXPLOSIVES No. 90F.**

DEALERS WANTED

We want live dealers in towns still open. Get the orders resulting from our advertising. You need not carry nor handle stock. State jobber's name or bank reference when writing.

E. I. du Pont de Nemours & Company
Established 1802
World's largest makers of farm explosives
Wilmington, Delaware

Big Profits in Butter-making

—if you can make high-grade butter. The new book "How to Make Creamery Butter on the Farm" tells you how, explains clearly every process of scientific butter-making. Most practical and understandable work published on the subject.

Used as a text book in many Agricultural Colleges.

Worth \$1.
Special Offer—send 20c for a copy. Money back, if not satisfied.

Minnetonka Company
1901 Farmers Bank Bldg.
Owatonna, Minn.



The Quality Horse Nail—

the one having a sure grip on the shoe—holding it tight to the hoof under tremendous strains—is **The Capewell**.
Shoers noted for the highest class work accept no substitute—not the cheapest regardless of quality but the best nail in the world at a fair price.
Make it a point to have Capewell nails used in shoeing your horses.



Only \$2 Down
One Year to Pay!

\$24 Buys the New Butter-ly Jr. No. 2. Light running, easy cleaning, close skimming, durable. Guaranteed a lifetime. Skims 95 quarts per hour. Made also in four larger sizes up to 5-1-2 shown here.

30 Days' Free Trial Earns its own cost and more by what it saves in cream. Postal brings free catalog, folder and "direct-from-factory" offer. Buy from the manufacturer and save money.

ALBAUGH-DOVER CO. (12)
2139 Marshall Blvd. CHICAGO No. 5 1/2

YOU CAN'T CUT OUT
A Bog Spavin, Puff or Thoroughpin, but

ABSORBINE
TRADE MARK REG. U.S. PAT. OFF.

will clean them off permanently, and you work the horse same time. Does not blister or remove the hair. \$2.00 per bottle, delivered. Will tell you more if you write. Book 4 K free.

W. F. YOUNG, P. D. F., 23 Temple St., Springfield, Mass.



Raise Your Calves on Blatchford's Calf Meal and Sell the Milk

More calves have been raised on Blatchford's Calf Meal than on all other milk substitutes combined.

100 lbs. makes 100 gallons of milk substitute, costing only one-third as much as milk. Prevents scouring and insures the early maturity of sleek, handsome calves. It is steam-cooked and no trouble to prepare or use.

Write for Pamphlet "How to Raise Calves Cheaply and Successfully with Little or No Milk." At dealers, or Blatchford Calf Meal Factory, Dept. 3, Waukegan, Ill.



Dairying

Grades Make Good Showing

By Carlton Fisher

AN INTERESTING cow-testing report giving the performance of grade cows compared with registered stock is sent us by L. P. Dissly, tester for the Cortland (Ohio) Cow-Testing Association. The figures are for May, 1916. Altogether 263 cows were tested, of which 82 produced over 35 pounds of butterfat during the month, and 13 produced over 50 pounds. Here are the records of the latter arranged in order of butterfat productions:

Breed	Pounds Milk	Butterfat
Registered Holstein ...	2131	71.40
Grade Holstein ...	1676	70.40
Registered Holstein ...	2238	70.05
Registered Holstein ...	1850	60.32
Registered Holstein ...	1829	54.87
Registered Jersey ...	1021	60.06
Cross (Holstein and Durham) ...	1356	56.95
Grade Holstein ...	1305	55.48
Registered Holstein ...	1177	52.96
Registered Holstein ...	1350	56.70
Grade Jersey ...	1008	56.45
Cross (Holstein and Guernsey) ...	1221	54.94
Grade Holstein ...	1378	52.37

While these figures cover too short a time and are too limited to form a basis for definite conclusions, they support the contention of successful dairymen that many well-bred grade cows make excellent producers.

Grades cannot be expected to outyield registered stock, but they do in some individual cases. The logical steps in dairy progress are first from scrubs to grades, and then from grades to pure-breds. All you need to start with are good vigorous cows of any breed and a pure-bred bull of your chosen breed.

Willing to Cater

By Mrs. Alta B. Dunn

A NEIGHBOR of mine, living on a farm five miles from a town of 1,200 people, claims that she makes more in a year from her produce, sold directly to the consumer, than her husband does from his farming operations. Most of this produce she raises herself, and, except in bad weather, she markets it, making delivery to her customers in town every Saturday. She sells butter, eggs, garden truck, dressed turkeys, chickens and geese, honey and lard.

There is nothing spectacular about her methods. Her prices are moderate, but what is sold is uniformly of good quality. Butter is molded in one-pound bricks, wrapped in parchment paper, but not enclosed in paper cartons. Vegetables are crisp and fresh, poultry well conditioned and neatly dressed, eggs fresh and everything clean.

At Thanksgiving time I happened to be visiting in a home where one of her dressed turkeys was delivered. It was in prime condition, plump, fat, and with no sign of pin feathers. The bird was drawn and perfectly clean, and the removal of head and feet left it ready for the pan.

Most housewives of my acquaintance, when preparing a "company" dinner, so cordially detest the job of dressing a fowl, or of cleaning it after it has been roughly plucked, that they are glad to pay extra to get a fowl that is ready to cook. I mention this as an advantage of knowing one's market. This turkey weighed 10 pounds after picking, and brought 20 cents a pound—a fair price to both producer and consumer.

Though living in a community where many farmers are unable to sell their produce profitably, this woman often has more orders than she can fill. This year her poultry was entirely sold out by the first of January.

Her success may be attributed to the fact that she knows her market thoroughly and is willing to cater to it. She knows that there is greater demand for turkeys than for geese, more calls for chickens than for turkeys, and raises her poultry in accord with this demand. She also understands that in this town, where incomes are not large, the people cannot afford to pay fancy prices for their foodstuffs, so she wisely eliminates the frills of wrapping and packing which please the eye and add to the cost of an article, but do not enhance its food value.

Not only does she understand the general needs of the market she aims to supply, but she is equally familiar with the individual preferences of her customers, and never loses sight of their likes and dislikes. In this way she holds her customers from year to year.

The following list of produce sold in 1915 will serve to show the quantity of produce one woman raises and markets—practically alone.

Butter	\$383.55	Geese	\$24.00
Eggs	139.80	Honey	10.00
Chickens	117.65	Lard	3.00
Turkeys	62.00		
Vegetables ..	56.00	Total	\$796.00

Briefly, then, this woman disposes of her truck advantageously because she makes it a point to find out what people want, and then "delivers the goods."

Cheese Oddities

CHEESE is thought to have been accidentally discovered. Shepherds, according to the story, left some sour curd in a cave, and when found later it had turned to cheese.

Cheese is not indigestible when eaten with crackers, bread, pastry, or cereal foods. But as it resembles meat in composition it should be eaten lightly at a meal where much meat is served.

Exports of cheese from the United States last year were over 63,000,000 pounds, or about twenty times as much as usual. The armies are consuming cheese at the rate of about a fifth of a pound a day per man.

Cows at Banquet

BANQUETS held in dairy barns have been of frequent occurrence in New York, Wisconsin, Illinois, and other prominent dairy States. This particular picture, however, was taken in Washington State, near Spokane. Covers were laid for seventy guests, and the festive occasion incidentally has considerable advertising value since each guest carried away a favorable impression of the sanitary conditions under which milk is produced in this dairy.

The dairy industry in the Far West has been stimulated both by the rapid growth of the cities and the progressive interest in pure milk. High-class dairy cows—in this case Jerseys—are also rapidly taking the place of range cattle for milking purposes.



This picture, a banquet table in a dairy barn, was taken in Washington State, where interest in pure milk and clean barns is steadily increasing

Foreign Cattle Prices

By B. D. Stockwell

DAIRY cattle in Europe will command excessive prices at the close of the war, judging from a report of the Swiss Cattle Breeders' Association. Since the beginning of the war, prices have risen from 25 to 30 per cent, and further increases are expected. At present the price of good Swiss dairy cows ranges from \$150 to \$300, and pure-breds may bring twice as much.

Jerseys, North and South

TWO remarkable dairy records have been announced by the secretary of the Jersey Cattle Club. One was made by a registered Jersey cow in Alberta, Canada, at 52° north latitude, where the thermometer gets down to fifty below zero in the winter-time. In four years this cow produced 51,872 pounds



This Jersey cow at 52° north latitude averaged about 36 pounds of milk a day for four years

of milk and 2,673 pounds of butterfat, or over two pounds of butter a day. The other cow is also a registered Jersey, owned by a breeder in New Zea-



Here is the southern Jersey cow which, beginning as a two-year-old, produced nearly a ton of butterfat before she was five years old

land, at 46° south latitude. In three years she produced 29,909 pounds of milk and 1,863 pounds of butterfat, a record similar to the other.

While dairying is not commonly carried on in cold climates, apparently the reason must lie elsewhere than in any fault of the dairy cow.

Questions for Dairymen

A VIRGINIA reader has a heifer which he says is inclined to be brought to milk. "If I milk her," he asks, "before breeding her, will she have a calf?"

Have any readers had experience in such a case?

Curious Post Mortem

"I HAVE been a reader of FARM AND FIRESIDE for a good many years," a Colorado dairyman writes, "and have read a good many answers to your readers' questions. Now I would like to have you mention one or two for me. We had a valuable cow that died, and I am anxious to know the cause of her death.

"The cow took sick at calving time, and didn't seem to care for the calf at all. She gave a rather scant flow of milk. After a week she refused to eat anything, and one morning we found her down, throwing her head from side to side and rolling her eyes. We took her temperature and found it 104. She lived a month after the calf was born.

"After her death we opened her and found her liver was brown and soft, and her lungs looked like dark raw beef with yellow spots on them. We gave her oil, bathed her with mustard, and gave her bran water to drink. What medicine should we have used?"

This cow was incurable, and the cause of death was probably tuberculosis, as indicated by the condition of the liver and lungs. Calving and milk fever hastened the progress of the disease. She apparently recovered from the milk fever, but was in such a weak condition as to be a ready victim for tuberculosis that, though unsuspected, had been developing for some time past.



Crops and Soils

Boy's Bumper Corn Crop

By Floyd W. Bergcy

SOME of FARM AND FIRESIDE's boy readers may be interested in my corn-growing work. I grew a measured acre in 1914 and the same area in 1915. I did all the work in 1914 except plowing and harrowing. In 1915 I had no help for any part of the work.

For the 1914 crop I spread in March 12 loads of stable manure on the acre with a manure spreader. The soil was sandy loam and the corn was planted in May. The acre was harrowed three times before planting and five times after planting. Six cultivations were given this corn. The variety grown was Pickett Dent, and the yield was 100.3 bushels of shelled corn from the acre. The cost of growing the corn was \$37.62. The net profit from the acre was \$48.54.

My 1915 crop from an acre was only 93 bushels of shelled corn, although the care given it was just as good. The unfavorable season caused the reduction in yield. I cultivated the 1915 crop ten times to help overcome the effects of the unfavorable weather.

Alfalfa on Mesa Soils

By J. T. Barlow

THERE are thousands of acres of mesa or bench-land soils in New Mexico that might be made to produce profitable crops, provided water could be secured at a reasonable price. This was one of the facts that influenced the New Mexico Experiment Station to start a series of experiments in 1907 on the mesa soil. The tract of land used for this work is situated on the first mesa just above the valley. Various crops were tried up to the year 1913, with varied results. Since that time this land, which is divided into 48 small plots one-eighth of an acre in size, has been growing alfalfa. This crop was chosen because of its great importance in New Mexico. Now all of the plots are supporting an excellent crop of alfalfa and are yielding five cuttings a year.

Since the soil was somewhat uniform, the plots were divided into series, depending upon the depth of soil over gravel. This was considered necessary in order to make the results comparable and more uniform. The alfalfa was sown in rows on some of the plots, while on others it was drilled in the usual manner. A few of the plots were left fallow. Different depths of water, varying from two to five inches, are applied to the different plots at each irrigation. The plots are irrigated every ten days whenever the average total moisture content of the top six feet of soil falls below 7 per cent. To determine this moisture content, samples of soil of each plot to a depth of six feet are taken with a soil tube every ten days. These samples are then removed to the laboratory, weighed, dried in an oven, and the loss of moisture calculated. Seven per cent

was chosen as the minimum moisture content that the plants could stand without being detrimental to their growth. Results, however, tend to show that this point is too low and the plants sometimes wilt badly before they are irrigated.

Some of the studies that are being made in connection with this project are: the best depth of water to apply for the most economical production of hay, the duty of water, comparison of yields of row and drilled plots, evaporation and transpiration studies under field conditions, depth of penetration of roots under different amounts of water, and depth of penetration of irrigation water when different depths are applied.

Many valuable data already have been secured in connection with this experiment, and published in bulletins numbers 86 and 93 of this station. Some of the results secured during the season of 1915, showing the possibilities of alfalfa on our mesa soils, are as follows:

AVERAGES OF ALL PLOTS

Method of planting	Inches at each irrigation	Total water applied during 1915, inches	Rainfall during growing season, inches	Yield an acre, pounds
Drilled ..	2	29.6	5.80	11569
Drilled ..	3	39.5	5.80	12902
Drilled ..	4	42.6	5.80	13964
Drilled ..	5	49.2	5.80	14077
Rows	3	36.5	5.80	11387
Rows	4	43.2	5.80	12704

The cost of maintaining so large a number of small plots is so much greater than the ordinary expenses of growing alfalfa that no cost data are available. However, the data given in the above table show possibilities, provided water can be applied at an economical price.

Threshing Sweet Clover

By W. H. Arnold

THERE are many anxious moments when sweet clover is ready to cut for seed. Four fifths of the seed is ripe at that time. If you wait till they are all ripe there is no economical way of saving the crop, because no machinery can prevent a loss of the seed by shattering. When cut at the right time the loss is very small. The most successful method I have found is to use a mower set to cut as high as it can. Then have as many men as are necessary to tie the sweet clover to follow the mower.

Of course the mower must not run over it after it is cut. The sweet clover is tied with its own straw in bundles which are shocked and capped like wheat and then put under shelter or in a stack as soon as it is dry enough to keep without molding. The most serious shattering is caused by getting wet repeatedly. If it doesn't get wet at all the seeds will cling very well.

I would neither house nor stack the crop if I could be sure of a threshing machine when I wanted it. Any ordinary grain thresher will thresh it as easily as wheat or oats.

Makes Money with Beans

LYMAN CRANE, St. Lawrence County, New York, believes that growers should give beans as good a chance as corn, and points to his own results as indicative of the profits in growing the crop by the best methods. Last year he harvested 16 bushels of beans from two rows in which two quarts of beans were planted. With beans bringing \$4 a bushel the prospects for the season are bright.

Write FARM AND FIRESIDE about your bean-growing experience. We shall be glad to know about it.

How Drainage Saves

By Howard Templin

CROPS can be seeded from one to four weeks earlier on well-drained land than on land where tiling has not been done. This is the experience of the Maine Experiment Station.

Tile drainage does not deprive the plants that are growing in the soil of the moisture they need. Rather it makes it possible for them to receive more moisture. This is accomplished by the fact that the condition of the soil is kept in very sponge-like condition when the heavy downpours of rain are quickly carried off. A spongy soil will retain for the use of the plants much moisture. Without the drains the root systems of the plants would be checked in their development by the standing of the water on the soil, and the result would be a much-decreased crop yield.

The soil is also made warmer when drained than when not. The water goes off through the drainage system. Very little is allowed to evaporate from the surface of the soil. When evaporation is checked the soil is kept warmer, and the result of this condition is that greater crops are produced.

All through the season the beneficial effects of drainage can be seen. Land can be plowed earlier in the spring, can be cultivated soon after a rain, in fact is at the control of the farmer to a much greater degree than when tiling has not been practiced.

The money returns from tiling are therefore not to be found alone in the increased crops produced but can be shown on the account books in the saving of time and labor by the ease with which the fields are worked.

Proper drainage of the soil will many times pay for the cost of the installation of the tile in one or two years. This is because of the labor saved in working the field, and of the increased crop yields.

After-Value of Fertilizer

By Clyde A. Waugh

A GOOD many farmers when considering buying fertilizer figure all the cost against the first crop, and do not take into consideration the after effects of the fertilizer. There is no question but that the crops following the crop that was fertilized reap a big benefit from the fertilizer that is still left in the soil, especially when the season in which the fertilizer was applied was a dry one. The following instances illustrate this point.

Last year we had two acres of onions in a field next to a potato field. The potatoes had a small application of a complete fertilizer while the onions had about 1,000 pounds of a high-grade onion fertilizer. The onion crop was not up to standard because of a wet season.

The next year the entire field was in corn. The two acres of onion ground produced nearly a ton more of corn to the acre than the rest of the field. But besides this the corn was fully matured from the onion space, while the other was soft and had to be handled pretty carefully to prevent it from spoiling before the time for selling came around.

Because of this the matured corn could be handled quicker, it was sold quicker, and it didn't undergo the amount of shrink that the other did.

As a second instance: Another field of two acres the same year under about the same conditions was put to sugar beets the following year. While yields last year in general were rather poor around here, this field made close to 20 tons to the acre. At first it did not look as though there would be anything extraordinary about the crop. But when harvesting time came around there was evidence enough even before the beets were taken to the scales.

Controlling Hessian Fly

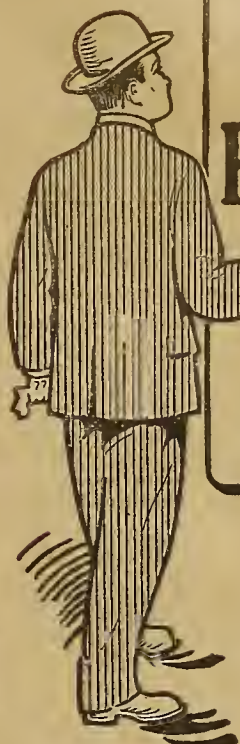
By L. T. Baker

METHODS for controlling the Hessian fly, the worst pest of the wheat field, in the fall-wheat-growing sections may be summarized as follows: Sow the best of seed in thoroughly prepared, fertile soil after the major portion of the fall brood has made its appearance and passed out of existence, and, if possible, sow on ground not devoted to wheat the preceding year.

While it may seem far fetched to bring forward as a preventive measure the enrichment of the soil, a fertile soil will produce plants that will withstand with slight injury attacks that will prove disastrous to plants growing on an impoverished or thin soil. This is because a fertile soil will enable an infested plant to tiller freely, and these tillers will have sufficient vitality to withstand the winter and send up head-producing stems in the spring. Some farmers use fertilizer to insure a vigorous growth.

If
Coffee
don't
agree
use
POSTUM

"There's
a
Reason"



Postum Cereal Co., Ltd.
Battle Creek, Mich.

WRITE FOR BROWN FENCE BARGAIN BOOK AND SAMPLE

Over 25,000,000 rods Brown Fence already sold to 400,000 farmers. Factory Prices. Freight Prepaid. 150 styles. 13c per rod up. Gates and Steel Posts, too! Write postal.

THE BROWN FENCE & WIRE CO.
Dept. 21E • • • Cleveland, Ohio

Steel Shoe Book Saves You \$20!

1 Pair Outlasts 3 to 6 Pairs All Leathers FREE

If you are tired of wet, sore, calloused feet—Rheumatism and Colds—hard, twisted, leaky leather—Big Doctor and Shoe Bills—loss of time, money, health and comfort—TRY FREE my Latest Triumph—

"Steels"
Light, Springy, Comfortable, Economical, Waterproof. Warm in winter—Cool in summer—Adjustable Steel Rivets instantly renewed. FREE BOOK tells how you can try "Steels" 10 days FREE and save \$10 to \$20 shoe money.

N. M. Ruthstein—Steel Shoe Man—Dept. 321—Racine, Wis.

KITSELMAN FENCE

Get it from the factory Direct

HORSE-HIGH, BULL-STRONG, BIG-TIGHT

Made of Open Hearth wire, heavily galvanized—a strong, durable, long-lasting, rust-resisting fence. Sold direct to the Farmer at wire mill prices. Here's a few of our big values:

26-inch Hog Fence - 15 cts. a rod.
47-inch Fence - 21 cts. a rod.
48-inch Poultry Fence - 27 cts. a rod.

Special Prices on Galv. Barbed Wire.

Our big Catalog of fence values shows 100 styles and heights of Farm Poultry and Lawn Fence at money-saving prices. Write for it to-day. It's free.

KITSELMAN BROS. Box 271 Muncie, Ind.

AGENTS—KEROSENE (COAL OIL) BURNER

Makes Any Stove a Gas Stove

Free Sample to Workers

Makes its own gas from Kerosene (coal oil). Gives every home a gas stove. Absolutely safe. Cheapest fuel known. Cooks a meal for 1 cent. Agents just coming money. Women wild about it. No more overheated kitchens. No more danger from Safe, Clean, Odorless, Cheap gasoline. Every home a prospect. Low price makes quick sales. Easy to carry and demonstrate. Big profits. Your territory is open. Write today. Thomas Burner Co., 2548 Gay St., Dayton, Ohio

ASK

our sales office nearest you for prices and terms on fertilizers adapted to your soil and crops.

Send for Booklet—Free

The American Agricultural Chemical Co.

New York, Baltimore, Philadelphia, Buffalo, Cincinnati, Cleveland, Detroit, Boston, etc.



Many corn growers go out in the fields late in September or early in October and select their seed corn for the next year's crop

Lowest Prices Ever Made on World's Best ROOFING Freight Paid

We sell direct to you and save you all middlemen's profits. We ship everything—roofing, siding, ceiling, wall boards, etc.—Freight Prepaid. We cannot quote you our low factory prices here, but send for our Big Roofing Book and see for yourself that our prices are lowest ever quoted.

"Reo" Metal Shingles costless, yet outlast three ordinary roofs. Need no painting or repairs. Rot—fire—weather—rust-proof. Insurance cost is less—guaranteed against lightning.

Edwards Exclusive Tightcote Process makes Edwards Metal Shingles, Metal Spanish Tile, Reo Cluster Shingles, Grip-Lock Roofing and other Roofings, Ceiling, Siding, etc., absolutely rust-proof. Not a single point of space exposed to weather.

Our Patent Interlocking Device prevents warping, buckling or breaking. Protects nail holes—nails are driven through under layer; not exposed to weather. No special tools required. Easy to lay.



\$69.50 and up
Lowest prices on Ready-Made Fire-Proof Steel Garages. Set up any place. Send postal for Garage Book showing styles, sizes.

Edwards Products Stand the Galvanizing Test. No other galvanizing can compare with it. Bending, hammering or lightning won't cause it to flake, peel or crack.

Get FREE Book and you'll find that our prices are lowest ever made for World's Best Roofing. Coupon brings Free Samples, Prices and Book. Ask for Book No. 953.

FREE Samples & Roofing Book

The Edwards Mfg. Co. 908-958 Pike St., Cincinnati, O. Co. 908-958 Pike Street, Cincinnati, Ohio

Please send FREE Samples, Freight Paid prices and World's Greatest Roofing Book No. 953.

Name.....

Address.....
Largest Makers of Sheet Metal Products in the World

WE WILL PAY YOU \$120.00 for congenial work in your own community. 60 days or less. Man or woman. No capital required. Opportunity for promotion. Spare time may be used. Full particulars free.

International Press, 334 Winston Bldg., Philadelphia

SQUAB BOOK FREE
Make money breeding PR squabs. 1916 demand biggest ever. Squab book free, telling money-making experience. How to sell by parcel post. Start small, grow big. Many women customers. Write today. **PLYMOUTH ROCK SQUAB CO., 503 HOWARD ST., MELROSE HIGHLANDS, MASSACHUSETTS.**

PIGEONS PAY
Better Than Chickens
Young pigeons (squabs) bring 40 to 60¢ each when 3 to 4 weeks old. Big demand in city markets. Each pair of pigeons easily clear \$4 per year. Always penned up. Very little expense and money needed to start. Free Book explains all. **MAJESTIC SQUAB CO., Dept. 10, ADEL, IOWA.**

\$550.00 CLEAR IN 90 DAYS

If you want to know how to make it, write us quick. We need high-grade representatives for the one book that tells how to make farming pay.

SUCCESSFUL FARMING

Covers every phase of agriculture. Prepared by 37 leading authorities on farming, fruit-growing and stock-raising. Full of money-making plans, facts and ideas. Fully illustrated. Remarkably low price. Easy to show any farmer, fruit-grower or stock-raiser how this book helps him make more money. Exceptional opportunity for large profit. No capital required. Sample book and particulars free.

Universal House, 541 Winston Bldg., Philadelphia

Mr. Edison's Wonderful Phonograph

Only **\$1.00**

\$1.00 After

Free Trial

Yes, you may keep this new Edison—Thomas A. Edison's great phonograph with the diamond stylus—and your choice of records, too, for only \$1. Pay the balance at rate of only a few cents a day. Try the new Edison in your own home before you decide to buy. Send no money down. Entertain your friends with your favorite records. **Write Today For Our New Edison Book.** Send your name and address for our new book and pictures of the New Edison phonographs. No obligations. **C. K. BABSON, Edison Phonograph Distributors, 4036 Edison Block, Chicago, Illinois**

Send No Money 9 Months to Pay

We will send this big, upholstered Rocker today

responsibly—just

write us a letter or

PostCard saying:

"Send me

Rocker No. 90291.

I will pay the

freight charges

and if I find it

a satisfactory

after 10 days free

trial, I will send

\$9.45 each month until

have paid the bal-

ance. Introducing

Price of \$9.45. If

you don't want to

keep it, don't pay

a cent, send it

back at our ex-

pende — you take

no risk — send for

this Rocker today.

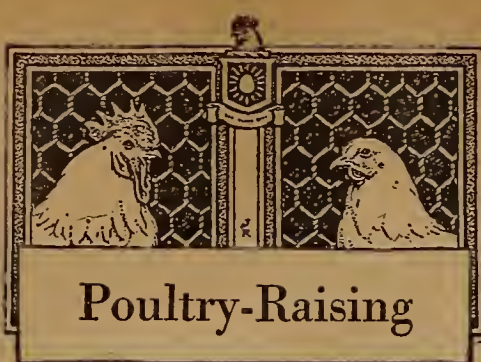
No. 90291

Heavily upholstered

throughout with Goldon Brown imitation Spanish Leather.

Spring seat 20x20 in. Tufted back 28 in. high. Sent from factory — No. Mich.

GROFFS & REED CO., Dept. C-3111, CHICAGO, ILL.



Poultry-Raising

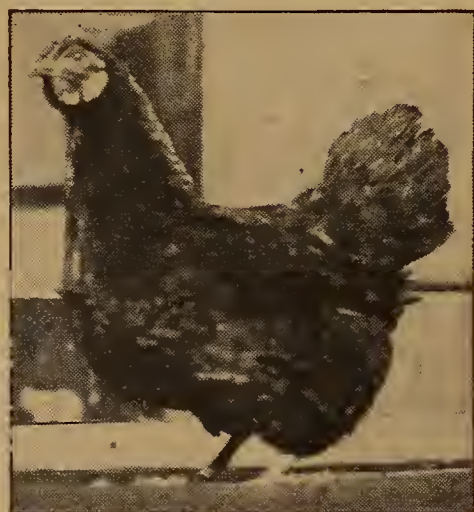
Beware of Overstimulation

By B. F. W. Thorpe

I HAVE just called off a feeding experiment made with a pen of bred-to-lay Barred Rocks which turned out exactly as I expected it would. This pen of hens had been laying steadily since early winter at the rate of between 60 and 75 per cent throughout the winter and spring. They also laid just under 60 per cent through June and July. The first of August, when the weather was excessively hot, the manager of a boarding house offered to furnish me with the scraps from his tables. These were delivered to me fresh daily, and consisted of a heavy proportion of rich meat, gravy, potatoes, beans, bread, and pastry, together with the seeds and shells of cantaloupes, watermelons, also peelings of peaches and other fruits.

As above stated, I felt certain that this rich, succulent food would not be productive of good results when fed to laying hens, even in moderate quantities. The hens had previously been fed a fairly well-balanced ration of dry mash, including scraps, mixed grain, and fresh lawn clippings for green food. About half of the mash was replaced with the table scraps, and for a few days the egg production increased up to about 80 per cent. Then trouble began in the way of soft-shelled eggs and eggs without shells. Soon half of the egg production was found on the dropping boards without shells, or with shells so thin that the eggs were broken when dropping only six or eight inches.

This little experiment, conducted for about two weeks, proved conclusively to me again that overstimulation with food that is too rich in animal protein and containing too much succulence is causing great loss in many flocks, particularly where only a few hens are kept. In the experiment described I made sure that all of the scraps fed were in a sweet and unspoiled condition. Where such scraps are allowed to sour and mold, they are almost as dangerous to feed to poultry as a full dose of absolute poison.



THIS star laying Rhode Island hen was trap-nested as No. 8 in the flock of E. B. Shaw last year. She laid 234 eggs in a year, and 316 eggs in 483 consecutive days. Had all this hen's eggs for the year been sold at the market prices, her credit account would have stood \$4.65.

Inexpensive Poultry House

By J. T. Raymond

POSSESSING limited capital and wishing to invest as large a share as possible in laying stock, the beginner in poultry-keeping in New England finds many ways to keep the cost of his house down. The best way is to find second-hand houses. The writer does not know of a town in which there are not unused poultry houses the owners of which generally will sell for half or a quarter of the original cost. The beginner can ascertain first what his town or district offers in this respect. Not infrequently a house accommodating 25 or 30 birds can be bought, moved, and set up for less than \$15. It will not be especially attractive, but so long as it has the open front, is free from drafts, and is dry and comfortable, appearances may be overlooked.

If he cannot find a suitable second-hand house and perforce must build, the

beginner still has an opportunity to effect economies. He must remember that labor is the costliest item, especially for an inexperienced employer. The job may not look so nice, but usually the results will be twice as good if he does the carpenter work himself. The saving effected will be much more than appears.

The cost of materials may be reduced 30 to 50 per cent. In cities second-hand lumber can always be obtained without much trouble. There are now building-wrecking concerns which make a specialty of the poultry trade. They sell sufficient material for a house 12x6x7 feet, including a door and two sash, for \$5 to \$8, and offer proportionate prices on material for larger houses.

Lumber from sawmill clean-ups is cheap in some country districts. There is always some second-hand lumber to be found. Sometimes large packing boxes are bought for 20 or 25 cents apiece of factories or dry-goods stores.

The low-cost house usually is not so permanent as others, and is less attractive, but it has ample justification in a poultry keeper's desire to do the largest possible business on a certain capital. It has been demonstrated over and over again in New England that a house can readily be cheap and yet efficient. Some of the greatest profits have been made in houses costing from 25 to 75 cents per hen.

Runner Ducks Make Money

By A. L. Roat

FOR our special trade of supplying farm produce direct to customers we find the Runner ducks a profitable side line. We keep them during the winter season, when not on range, in roomy, well-littered pens, cut fodder and cut refuse hay or straw being used for a litter to keep the pens dry and comfortable. When given a good chance our Runners lay nearly the whole year around, and the eggs bring a better price than hen's eggs. A rich mash, containing a well-balanced proportion of animal protein, is fed in a moist, crumbly condition in box troughs covered so that the ducks eat through the slatted side. Our ducks always have before them a good dry mash, plenty of grit, oyster shell, charcoal, and fresh water always within reach. In order to keep the ducks from splashing their drinking water, I dig out the soil and fill in with stones and ashes two feet deep and set the drinking bucket on this prepared spot. We find that our ducks will make use of a dust bath of sifted coal ashes and road dust just the same as will the hens. During the summer season plenty of shade from the hot sun is a necessity and an occasional run to a pond or a creek for a swim will keep them in better condition. However, the ducks will do fairly well without any water except a plentiful supply kept always before them in a bucket or container into which they can thrust their entire heads. Several times a year the duck yard, when the birds are confined, is plowed and limed to prevent the soil from becoming sour and ill-smelling.

Highway to Good Laying

By Vincent Lee

THERE are a good many bugs and things running around loose for the hens these days, yet I do not feel it best to take away all meat scraps. Not so many are needed as in cold weather; still, if we try our flocks we will find that the hens will take a bit more such food that they are able to pick up. The same way about grit. Keep the box well supplied.

The road to good egg yield lies hard by a good, clean drinking fountain. Milk helps too. We can afford to pay five cents a gallon for buttermilk as a summer feed. But I want it buttermilk, and not half water.

A little more wheat bran and oats and wheat, and less corn and barley, in hot weather, keeps 'em healthy.

If you hold a post-mortem over the hen that drops off the perch and dies, you will no doubt find that she has an enlarged liver and heart. Too heavy feed did it. You have been drawing on the corn bin too hard. Lighten the ration up a little bit. Oats, bran, middlings—these are hearty enough for midsummer.

Get the cockerels out of the flock now. The pullets have enough to contend with without being pestered by these little rascals.

It isn't a waste of time to keep the water dishes clean. It takes some nerve to stop the plow or get off the mower to make sure everything is right, but it pays better than having a lot of sick hens.

We need to watch pretty close for the stolen eggs these days. It doesn't take long for eggs left lying round loose under old board piles and such things to have something happen to them.

Laying Contests Multiply

By Jason Waters

ARRANGEMENTS are now being made by eight experiment stations to conduct egg-laying contests in 1917. In addition to these there will be several county or community laying contests, and at least one poultry correspondence school will put on a laying contest of a year's duration.

The poultry department of the New Jersey State Experiment Station has its plan completed for a laying contest to continue three years, accompanied with breeding experiments worked out by means of the progeny of hens which prove themselves to be high-record egg producers during the first year of the contest.

An 1,100-Egg Hen

By Frank W. Orr

A HEN that keeps her egg machinery working steadily up to and during the sixth year has earned the right to have her progeny scattered broadcast over the land. The stunt of laying 1,100 eggs by the middle of her sixth year is the best of testimony that breeding for



heavy and continued laying is one of the most important objects now before the poultry world. The Leghorn hen, Oregon, A-27, has the following lay to her credit:

First year240 eggs
Second year222
Third year202
Fourth year155
Fifth year168

Total987 eggs

in 60 consecutive months of laying. Up to midsummer in her sixth year she has laid over 100 eggs, or enough to bring her grand total up to 1,100 eggs. Best of all, she is in good condition, and still laying steadily.

This remarkable hen belongs to the experimental stock of the Oregon Agricultural Experiment Station.

WERE I asked to name the greatest hindrance that is preventing good growth among poultry in midsummer and early fall, I would at once say lack of fresh water always within reach of the birds. Thousands of chicks and other poultry are making little or no growth to repay for the feed they are eating simply because they lack plenty of fresh water always within reach when they need it most.

SOME Canadian poultrymen are now making use of geese to turn into their fruit orchards for the purpose of cleaning-up all fallen fruit, and thus prevent the propagation of insect pests the following year. A dozen geese to the acre of orchard will take care of the dropping fruit, in many cases, up to harvest time.

MOLDY, sour, and decaying food kills and injures more young and old stock than almost any other cause. It is poor economy to save a few cents' worth of spoiled food and lose several dollars' worth of chickens from the poisonous effects of the food.

WHEN hitched onto the plow or cultivator, try sowing some oats on the ground where hens or chickens are yarded. Then turn a few furrows over the oats. The birds will work on this freshly turned ground after the oats and insects for days at a time. If this plan is followed regularly through the summer season, hens will do nearly as well as though they are on range.

MUCH good grain feed is often about as good as wasted by feeding it unground to ducks and geese. It has been found that finely cracked or ground grains are worth about double as much for feeding water fowls as whole grains.

Save Your Worn Tires



GET 5,000 MILES MORE

service by "half-soling" them with Steel Studded Treads the same as European Motorists have been doing for over 3 years. 30,000 American Motorists have done this in the last 8 months and are saving \$50.00 to \$200 a year in tire expense.

5,000 Miles Without Puncture ^{is the} signed guarantee you get with every Durable Steel Studded Tread.

We Deliver Free ^{without a cent deposit, prepay the express and allow you to be the judge.}

Special Discount ^{offered to motorists in new territory on first shipment direct from the factory.}

Stop throwing away your worn tires—mail the coupon below for details—he sure and put in your tire states.



Get 5000 More Miles

===== MAIL THIS COUPON =====

The Colorado Tire & Leather Co.
 1-89A Tread Bldg., Denver, Colo.
 1-89A Transportation Bldg., Chicago
 720-899A Woodworth Bldg., New York City

Without obligation send me free catalog, copy of guarantee, sample and booklet "10,000 Miles on One Set of Tires."

Name

Address

My Tire Sizes are

May too much of a sense of duty blind a man to some of the fine things in life? Read this story and judge for yourself

The Eye-Opener

An Engaged Couple See Each Other in a New Light

By TOM MASSON

HORACE TRUMBELL'S horse, although a nervous animal, usually stood without hitching. So he just put the lines around the whip and walked up the path to the Newton cottage. The Newtons were known as the "new folks." They had lived in the village only two years—long enough, however, for Horace to fall in love with Lyda, and to have arrived at an understanding with her. Horace had to wait for some time after he raised the brass knocker of the cottage door. Finally Lyda opened it. Her hair was disarranged. Her dress bore evidence of having been hastily put on. Her hands were of the kind known as parboiled.

She blushed slightly.

"Excuse me for keeping you waiting," she said.

"That's all right," said Horace. "I took a chance. But I thought I'd like to drive over to the fair at Amsbury's to-day and maybe you'd go along. It's a nice day," he added, looking up at the sky. "We can drive over in an hour, and that'll give us a couple of hours there, and we can be back by seven o'clock."

Lyda hesitated.

"I'd like to go," she said, "but—come in and sit down a minute."

He followed her into the parlor, and she turned to him apologetically.

"We're cleaning house," she said.

"Of course—" began Horace. He came from generations of well-to-do farmers to whom house-cleaning was sacred. A stern sense of duty compelled him to be merciless, even to himself, where the work of the house was concerned.

"You wait," interrupted Lyda, hurrying out.

"Mother," she called. "Horace is here, and wants me to drive over to the fair."

MRS. NEWTON came running in, her hands dripping, wiping them on her apron as she came. Her face fell. "I s'pose you'll have to go," she said dubiously. "It's kinder too bad, right in the midst of things. Still—"

Horace stepped out from the parlor.

"Excuse me," said Mrs. Newton. "You see, we're kinder upset to-day. But you go on," she exclaimed to Lyda. "I can finish up."

"Perhaps you'd better not," said Horace. "I—"

"I'll stay if you say so," said Lyda to her mother.

"No; I wouldn't have you do such a thing for the world. You go with Horace. It's only right you should. Run up-stairs."

Lyda's face beamed. With the enthusiasm of youth, she had already cast aside the atmosphere of work, and was taking on rapidly the hue of pleasure.

"I guess I will," she exclaimed.

"That's right," said Mrs. Newton, who did not let her disappointment over the interruption in their task cloud her daughter's departure. "You run right up-stairs and change your clothes, and don't keep Horace waiting."

"Perhaps—" began Horace. But at this moment he heard the horn of a big motor car in the distance and, second nature as it was for him to look out for his horse, he opened the door and rushed out to guard him while the machine was passing. Lyda ran up-stairs to change her clothes.

She was exceedingly deft, and this process was completed almost by the time Horace was back.

"I'm ready," she said with a smile, tying on her hat. "Good-by, Mother."

"Good-by," said Mrs. Newton, standing in the doorway. "And have a real good time."

Horace started up the horse and they drove off.

Lyda, free from the restraint of home duties and alive to the beauty of the world, began to chatter. Horace, however, was unusually silent.

"What's the matter?" she asked at last. "You don't seem right."

"I was thinking perhaps you ought not to have come."

"Nonsense. Mother didn't mind. Besides—"

She looked at him curiously. Lyda away from home, free from responsibility, was different from Lyda at home, full of duty.

"Don't let's think of anything disagreeable," she said. "It's fine to be out a day like this."

With a coquettish movement she leaned close to Horace. But for some reason he was not responsive.

"If I had known you was going to be this way," she said with a slight touch of resentment, "I don't know as I'd have come. Can't you have a good time? Can't you forget work?"

"No," said Horace gloomily, "I can't. I can't help thinking that perhaps you ought not to have come. It seemed too bad to leave your mother."

"Well, you needn't worry about that. What did you ask me for, anyway?"

"I didn't suppose you was house-cleaning."

"Well, what of it? I can go if I want to. Besides,"—she was becoming angry—"you have no right to talk to me like this. I don't want to go now. You can take me back."

Horace, however, had different views. Now that they had set out on their journey he was determined to see it through. His rigid masculine sense of duty made it impossible, however, for him to throw off the feeling that Lyda had not done right. Unconsciously, imperatively, he was asking himself the question whether, after all, this girl who was ready at the slightest call to leave her mother alone "in the lurch," as it were, would make the right kind of wife. There never had been a moment from earliest boyhood when he had ever indulged in any pleasure by sacrificing his home responsibilities. It was in the blood. Nay, more, it was in the county. He slapped the reins on the horse's back.

"No," he said, "we'll go on."

Stung by the injustice of the sudden attitude of

in the stock exhibits. At six o'clock he came up to her.

"Are you ready to go home?" he asked.

"Yes, if it is time," she returned.

"I've had a splendid time," she said. His denseness—for men are peculiarly dense about some things—prevented him from detecting that slightly raised note in a woman's voice which indicates unmistakably that she is playing a part.

He made no reply, but in another moment drove out in the buggy. She got in, and they silently proceeded on their home journey. Neither spoke.

It was dark when they reached her cottage. He got out first, and stood silently as she jumped to the ground without assistance.

"Will you come in?" she said politely.

"No; it's late."

"I'm much obliged for the ride. Good-night." She turned up the path.

"Lyda!" His voice cut the darkness.

"Well?"

"You're not the kind of girl I thought you were."

"I'm glad of it. I wouldn't be the kind of girl you thought I was—for anything! You want a girl who is ready to stick home and make a slave of herself all the time. Well, you're right I'm not that kind."

"No, I don't," he said slowly. "I like a good time as well as anyone, but I wouldn't let my mother stay home and work. And you flirted—you know you did."

SHE drew from her finger a small diamond ring and handed it back to him.

"Here," she said, "Horace Trumbell, you take back your ring. I guess we didn't understand each other, and it's a mighty good thing we found out in time. I wouldn't marry you—no! not for the world. And now you're free!"

"He stared at her almost blindly in the half-darkness. Without a word he took the ring. Without a word he turned, clicked the gate behind him, got

into his buggy, and drove off down the road to his home.

Arriving there he put up his horse and went in. His mother was waiting for him.

"Have a good time, Horace?"

"Yes."

She looked at him keenly. Something had happened.

"Why, what's the matter?"

He sat down wearily.

"Lyda and I have cut loose."

"Why Horace! What's the meaning of that?"

"She's not the kind of girl I thought. She wouldn't do—for me."

He bitterly recounted the tale of the afternoon and his mother raised her hands.

"Oh, Horace," she said, "why didn't you wait? Didn't you know that Mrs. Newton was at the fair all day yesterday?"

"No. What of it?"

"Why, Lyda insisted on her going. She told me so last night at the church rehearsal. She went and had a good time, and she said then there never was such a girl as Lyda to do her share. And so to-day, when you called, it was only right that Lyda should have gone. Of course, you didn't wait to have it explained. You said something she didn't like. Oh, I know you! I see it all. Of course she flirted. I'd have done the same thing. It's too bad. I—"

Horace started up. The chill red color came into his tanned face. A sudden, tremendous revolution was taking place within him.

"Yes," he said slowly, "I see—now. Oh, Mother, I've made a mistake! I must go right back."

A little later he knocked at the Newton cottage. Lyda opened the door herself. The moon made everything so light that they could see each other distinctly. The girl did not ask him in. Instead, she nearly closed the door and stood outside, her hands behind her holding the knob.

"Lyda, I've come back."

"For what?"

"I was wrong. I did not understand. I thought you had neglected your work—for pleasure, and it made me angry. I didn't treat you right, Lyda. I know now you had a perfect right to go."

The girl looked away from him, through the honeysuckle-wreathed pergola out across the moon-lighted expanse of meadow. She said nothing in reply. He waited. At last he spoke.

"Won't you take me back?"

"No." There was no bitterness in her voice.

"I've talked it over with Mother," she said quietly, "and I guess I'd better not. I'm sorry, but—" she opened the door and drew back into it—"you didn't trust me."

"Lyda, I'd never do it again."

But the girl shook her head slowly, in that unmistakable way which conveyed to him there was no hope.

"Yes you would," she said. "You couldn't help doing it, because you're that kind."

Was she right?



"Lyda, I'd never do it again"

one to whom up to the present moment there had never been anything but the most ardent adoration, and in whom she had never even suspected such a large vein of sullenness, obstinacy, obtuseness—call it by whatever name one chooses—Lyda's eyes blazed. But with a feminine restraint she held herself together. Here was a chance to test this lover, so suddenly revealed in a new light. She smiled, as she said slowly, as if measuring her words:

"I'd stop work at any time if I could have some fun. Why shouldn't I? I can tell you I'm not going to be a drudge all my life."

Horace drove on silently.

"If you think I'm going to be tied down to a house all the time, you're mistaken. I'm not that kind."

No reply from Horace, and neither spoke again during the journey to the fair grounds.

ARRIVING there, Horace put up his horse in the shed and Lyda joined the crowd. Presently he came back, and they walked along together, still silent. Soon, however, Lyda caught sight of someone she knew, a young man named Stenhall, who lived over the line in the next county.

"Hello, George!" she cried.

"Hello, Lyda! Hello, Horace! Come over to the dancing pavilion."

"I'm not interested in dancing," said Horace sullenly.

"Well, I am," said Lyda. "And you can come or not," she whispered. "I'm going to have a good time."

Thereafter Horace caught glimpses of her in the distance having her "good time" with other friends, for Lyda, being a pretty and vivacious girl, was a general favorite, while he took a sedentary interest

It Always Pays to be Observant
It May Mean \$1,000 for You in This Instance

The Farm Implements Puzzle Game

Fun for Everybody in a Fascinating Pastime

By the FARM IMPLEMENTS PUZZLE GAME EDITOR

HERE, folks, is something to help you spend your long winter evenings in an interesting and profitable manner. A Game which will sharpen your wits and develop your powers of observation. Observation, as you know, is what is responsible for more development than any other one human characteristic.

If Ben Franklin and Edison hadn't been of observing natures, in all probability we would all be burning tallow wicks. If farmers of past years hadn't been of the same inquiring frame of mind, we would still be scratching the ground with a wooden stick or harrowing with the top of a tree.

Much depends upon a man's use of his powers of observation. In the large degree the more he tries to develop his observative powers, the greater his chances to score a big success. We hear reference to "modern methods," "scientific systems," etc. Reduced to one word, these are invariably the result of observation.

We hope to have space in succeeding issues to sketch, briefly, such fascinating histories as the story of the plow, harrow and other commonly used implements. But here we barely have space enough to announce a brand-new Game for our readers—old and young—to furnish a means of practicing their observation and of sharpening their wits.

We can explain our new plan quickly and easily. It is to be known as the FARM IMPLEMENTS GAME and it will consist of fifty clearly drawn pictures, each representing some farm implement, implement part or mechanical term. These pictures will have no titles given them in advance. Readers will be invited to study the pictures and make title suggestions. When all fifty pictures have appeared, readers will file their sets of title suggestions and a committee of prominent and disinterested men will pass upon them and select titles which, in their judgment, are most fitting or applicable to the pictures. Awards, totaling \$3,500, as explained further on, will then be given those whose title suggestions are deemed best by the judges. A sample picture and five regular pictures (Nos. 1 to 5, inclusive) appear on this page so you can start playing the Game at once.

We want to point out that this Game is one in which everybody can take part. We want the women folks to try their ingenuity, too. And even the young folks, who are always good at puzzles, will find this more fascinating than the usual picture puzzles without much call for real ingenuity and little or no rewards for solving them. The young folks should be encouraged to play the Game.

To make the Game one which anyone can play intelligently and with benefit, and to meet the natural argument, "But I know little or nothing about farm implements or machinery," we have prepared an alphabetical list of about three thousand implements, parts and mechanical terms, all of which will be found in the average farm's equipment. With such a list for guidance of all, the person who knows absolutely nothing about machinery has every bit as good an opportunity to play and win as an expert. From this list, ideas for the pictures were obtained, and in this list the answers surely will be found.

With pictures and the list before you, the Game becomes both simple and easy. You study the pictures and then run through the alphabetical list to see if the ideas which occur to you can be used and also to get new ideas. The sample picture and accompanying matter explain this thoroughly. We call the list The Official Key Book because, containing as it does titles which will be selected for the pictures, it is truly the key to correct solution of each picture and, in this way,

the key to success. The rules of the Game do not require that you refer to the list but we cannot conceive of anyone playing the Game with the idea of submitting a carefully prepared set to win an award, yet not taking advantage of the assistance the Official Key Book offers.

Those who desire a personal and private copy for ready reference at all times can obtain a copy free and prepaid, as a reward for sending us \$1.00 for a three-year subscription to FARM AND FIRESIDE, new or renewal. Full subscription credit will be given and the Official Key Book, along with all data and instructions (Rules, etc.), will be sent without a cent's additional charge. If you are already a regular subscriber to FARM AND FIRESIDE, your subscription will be extended for three years from your present expiration date and if you are a new subscriber, three years' credit will be given you from date of first issue mailed you. By taking advantage of this offer you will receive each issue of FARM AND FIRESIDE which will contain additional pictures and further announcements about the Farm Implements Game. You will also have the Key Book and full details so

you can play the Game intelligently from the outset.

It is not a requirement that you be a subscriber for FARM AND FIRESIDE, because anyone may play the Farm Implements Game and try to earn an award. We will however, be pleased to send a copy of the Official Key Book and much helpful information free and postpaid to every reader who sends a three-year subscription to FARM AND FIRESIDE. This subscription may be your own new or renewal subscription or it may be a subscription of some neighbor. You will find the Official Key Book of value in finding fitting titles to the fifty pictures which will appear in FARM AND FIRESIDE.

Whether you take advantage of this offer or not, write for complete information concerning the Game. A post card will do. After carefully reading the folder which we will send you, you can decide intelligently, but if you do not take advantage of our offer to send complete details free you will be unfair to yourself.

It may surprise you to learn we intend to divide the substantial sum of \$3,500 among four hundred readers who submit the best sets of title suggestions. And wouldn't it be fine if your set of answers were considered the best and you were so fortunate as to receive the biggest award?

We offer for the best set of title suggestions as defined by the rules \$1,000.00
For the next or second best set we will award 500.00
For the third best set. 250.00
For the fourth best set 125.00

For the fifth best set \$100.00; for the sixth best set \$75.00; for the seventh best set \$50.00; for the eighth best set \$50.00; for the ninth best set \$25.00; for the tenth best set \$25.00; for the eleventh to fiftieth best sets \$10.00; for the fifty-first to one hundred and fiftieth best sets, \$5.00; for the one hundred and fifty-first to three hundredth, \$2.00; for the three hundredth to four hundredth best sets \$1.00, making a total of four hundred awards amounting to \$3,500.

The \$1,000, which is the first award—just think of it, \$1,000 for fitting titles to pictures, pictures of farm implements which you see about you every day—and three hundred and ninety-nine smaller amounts will go to someone. Why not you? I hear you say you have "never tried" your skill in this way. You are able to accomplish almost anything you really determine to do, why not decide to play the Farm Implements Game so well that you will be among the winners?

You will find this game a mighty fine mental recreation and relaxation. Play it! Get those around you to play it! You have our assurance that every participant, whether a subscriber or not, will receive honest treatment. The judges will be reputable men of standing, whose names we will announce later, and whose decision will be fair and impartial.

As editor of the Farm Implements Game it is not my intention to just publish the pictures in FARM AND FIRESIDE and then let you flounder around in the hope that you may be clever enough to get all the answers right. No indeed, I'm

going to help you. But there are certain fundamentals and a knowledge of the way to proceed will be very helpful. I'm going to give you every help I can. I intend to print some suggestions in every issue. Watch for them.

Right now, send me your name and address so I can send you the folder with all details, or better still, send one dollar for three-year subscription and free Key Book and all details. Watch for my announcement in the next issue, and in the meantime send a postal for the Farm Implements Puzzle Game Folder, which is free. You do not obligate yourself in any way if you send for information.

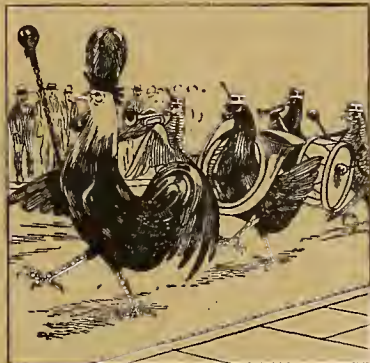
HERE IS A SAMPLE PICTURE

(See the First Five Numbered Pictures at Lower Center of Page)

The picture opposite is a sample picture to show you how pictures are drawn to represent farm implements, parts or items having to do with farm machinery and so show you just how you play the Game.

Look at the sample picture. What does it immediately suggest to you? Let's take a few titles from the Official Key Book.

Alfalfa Cultivator	Leg Band
Asparagus Buncher	Poultry Band
Band	Perch
Barb Wire	Scalding Vat
Cattle Fence	Sweep Rake
Double Trees	



There is nothing in the picture which suggests "Alfalfa" or "Asparagus" is there? "Band"—that sounds promising. It is surely a Band, but is that the best possible suggestion? Let's look further and carefully, "Barb Wire"—no, nor "Cattle Fence." What's this, "Leg Band?" No, that's not as good as Band, but Band is surely—here it is! "Poultry Band." Certainly, what else could it be? And there comes the Poultry Band, every little chick-musician playing away for dear life with the proud rooster drum major in the lead! Easy, isn't it? Fun, too?

Of course not all pictures will be as easy as this to name. The fun will be all the greater because of this, and don't overlook the size of the award to four hundred successful contestants. AND REMEMBER, THE TITLE TO EVERY PICTURE IS IN THE OFFICIAL KEY BOOK, because only those listed there will be considered. Surely, then, you can study the pictures and list with splendid results for yourself!

Regular or Official Pictures Nos. 1 to 5, inclusive, also appear on this page. There will be fifty in all and all fifty will appear between now and the January 20th issue. Until February 20th there will be a filing period, during which time you may submit your complete sets of title suggestions. No sets must be filed before January 20th, and all sets must be filed before midnight of February 20th. Examination of sets will then begin immediately.

Here are the first five pictures. Each represents some farm implement or implement part or mechanical term. What titles do they suggest to you?



What Farm Implement, Machine Part or Mechanical Term Does This Picture Represent?



What Farm Implement, Machine Part or Mechanical Term Does This Picture Represent?



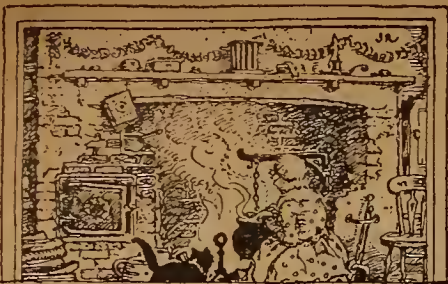
What Farm Implement, Machine Part or Mechanical Term Does This Picture Represent?



What Farm Implement, Machine Part or Mechanical Term Does This Picture Represent?



What Farm Implement, Machine Part or Mechanical Term Does This Picture Represent?



Housewife's Club

For Novel Trimming

By Lillian Grace Copp

IN PLACE of braid to trim your early fall gowns, make your trimming by crocheting with buttonhole twist of fancy shades a narrow edge, made from copying the design in insertion, not more than one-half inch wide. Another novel touch may be given by making a crocheted cord of buttonhole twist. This is accomplished by making a long chain, then covering the chain with single crochet.

Still another effective touch may be secured by making a loose chain of heavy embroidery silk, then with silk of another shade, one that contrasts prettily, run a stitch through the chain, putting over and under each loop, so the running stitch will come precisely through the center of your chain stitch. You can get no idea of the real beauty of these little individual touches without working them out.

Mending Underwear

By Mildred G. King

THE greatest difficulty in mending knit underwear is that running stitches, either hand or machine work, will break, however loosely they are put in. To put patches on knit underwear that will last as long as the original garment can easily be accomplished. The whole secret is revealed in the following directions:

Put on the garment to be mended, and take either the legs of old white cotton stockings or of a discarded union suit, cutting your patches as large as desired. Pin them over the rent while you still have the garment on. This stretches both garment and patch, and no undue strain can come on the stitches.

Remove the garment, and with coarse double thread pulled very loosely cross-stitch your patch on both the right and the wrong side of the garment that is being mended. This finishes both edges firmly. I have had garments mended in this way that the patches were still intact after the original union suit was beyond wear.

Some Good Cakes

By Alice M. Wharton

ACAKE in the pantry is worth ten in the cookbook, and there is nothing that will give the emergency dinner an atmosphere of calm preparation like a plentiful supply of tempting slices of cake. Here are some good recipes:

SPICE CAKE—One cupful of brown sugar, two eggs, two big tablespoonfuls of lard, two and one-half cupfuls of flour, two teaspoonfuls of baking powder, one teaspoonful of baking soda, one teaspoonful of ground cinnamon, one-half teaspoonful of ground cloves, one-half teaspoonful of ground allspice, and a little ginger. One-half teaspoon-

ful of vanilla, one-half cupful of cold coffee, a little less than one cupful of sour milk, one cupful of raisins, well floured. Mix the sugar and lard together, next adding the eggs. In another pan sift the following ingredients together: flour, baking powder, baking soda, cinnamon, cloves, allspice, and ginger. Then to the first mixture add the cold coffee and sour milk, stirring continually, then gradually add the dry ingredients which have been mixed together, then the vanilla, and last the raisins. This batter should be rather stiff, and should bake in a slow oven for about one hour.

SILVER CAKE—One cupful of sugar, one-half cupful of butter, whites of three eggs, one-half cupful of milk, two teaspoonfuls of baking powder, one teaspoonful of vanilla, flour enough to make a thick batter. Cream sugar and butter, add milk and a little flour. Then beat whites to froth, add them and flour until thick enough, baking powder and vanilla. Bake about one-half hour.

HICKORY-NUT CAKE—Beat one small cupful of butter and one and one-half cupfuls of sugar to a cream. Flavor and add yolks of three eggs. Work through a sieve one teaspoonful of baking powder and three cupfuls of flour. Mix with other ingredients. Add slowly one cupful of milk and one cupful of walnuts, chopped fine, then the beaten whites of three eggs. Bake about three quarters of an hour in pans lined with greased paper.

GOLD CAKE—One cupful of sugar, one-half cupful of butter, yolks of three eggs, one-half cupful of milk, two teaspoonfuls of baking powder, one teaspoonful of vanilla, and flour enough to make a stiff batter. Cream the butter and sugar, add the well-beaten yolks of eggs and milk; then the flour, baking powder, and vanilla. Bake about one-half hour.

POOR MAN'S CAKE—One cupful of cooking molasses, one-half cupful of lard, one and one-half cupfuls of brown sugar, two teaspoonfuls of soda dissolved in sour milk, one pound of raisins, one cupful of English walnuts, three cupfuls of flour. Mix together, and bake in a large pan for an hour, slowly.

Household Hints

TO AVOID APPLE STAINS—After peeling apples, immediately wash your hands in clear cold water, omitting the use of soap. You will never again be troubled with apple stains.

H. G. W., Louisiana.

TO LAUNDER WHITE SILK—If a tablespoonful of peroxide is added to water in which white silk is washed, as well as to the last water in which it is rinsed, your silk will never turn yellow.

J. E. R., Alabama.

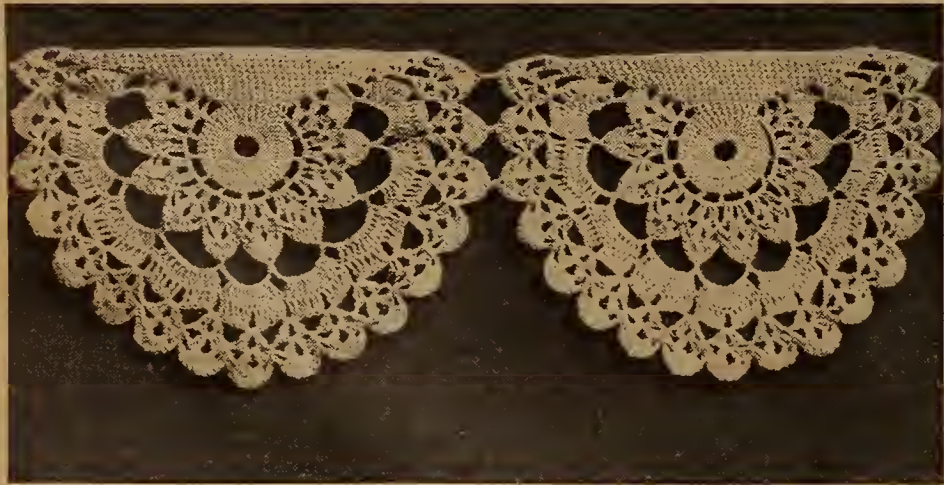
RAISING THE WORK TABLE—If your back aches from bending over a table that is too low for you, get four blocks of wood of equal size and cut a hole in each. Then set the table upon the blocks.

C. M., Illinois.

IMPROVED TONGUE FOR BUCKLE—Nearly everyone is familiar with the cardboard buckles made at home for covering with silk, etc., but not many know a tongue can as easily be made for the buckle by sewing a celluloid collar supporter to the back.

A. C. C., Kansas.

Half-Wheel Lace



ONE of the most adaptable designs which Farm and Fireside has offered is presented here. It will serve to finish table covers, pillow slips, or doilies, and may easily be used as a corset-cover yoke. For four cents in stamps the Fancy-Work Editor of Farm and Fireside, Springfield, Ohio, will send complete directions for making.

Letters From a June Bride

Betty Discusses a Sewing Problem



DEAREST SISTER:

The morning chores are over and the last of our old roosters has already been popped into the fireless cooker, so, unless something unexpected should happen, I shall have an uninterrupted hour for writing. This last week has been just as full as usual, though nothing of special importance has happened. I am enjoying my new coal-oil stove more and more every day. It's perfectly wonderful how much cooler the house is, without the extra heat of that great kitchen range. I am keeping accurate account of the amount of coal oil I have used, and so far the average has not been over 45 cents a week, which includes all the cooking except baking once a week, which will have to be done on the big stove until I have saved up enough egg money to buy the two-burner oven.

Yesterday morning I was in the midst of the monthly accounts, trying desperately to make both sides of my trial balance look alike, and was just beginning to wonder why we had ever undertaken such a complex system of bookkeeping, when Carrie Jones telephoned and said if I didn't mind she was coming over to spend the day with me. You can imagine how delighted I was to put those books away! I spread the matting rugs on the front porch, put some fresh flowers on the table to look inviting, hung up the hammock, and made everything as attractive as possible, so we could just sit and rock and be thoroughly comfortable and lazy.

All my nicely laid plans were frustrated, however, when Carrie arrived, laden with a bundle of sewing and full of explanations about how her sewing machine had gone out of commission just as she was ready to put the finishing touches on the last of the four house dresses over which she had been slaving for the past two weeks, and how she knew I'd be only too glad to let her do the final stitchings on mine. I confess I couldn't help feeling a bit disappointed at the turn things had taken. Not that I wasn't only too delighted to let Carrie use the machine. The poor old thing has been getting stiff in the joints for want of exercise anyway. But the fact is that Carrie, who can be so funny and interesting as a front veranda guest, is quite a different person when she is playing the rôle of seamstress. She looked pale and hollow-eyed to begin with, but by the time the day was over she confessed she was ready to scream with nervousness. And so was I.

As I had expected, there was a great deal to be done besides the "finishing touches," or else Carrie considers everything finishing touches after the pattern is cut out. In the first place, there was the hanging of the skirt, to accomplish which Carrie stood, for at least an hour, in front of the mirror and revolved around very slowly while I, on my hands and knees, made frantic endeavors to ascertain whether there was a quarter of an inch dip over the right hip, or whether, after all, it was the back gore that was too long. When this had been settled to the satisfaction of us both, there was the collar to attend to. For some unexplainable reason it refused to "set" right, and we couldn't come to an agreement as to the best way to remedy it. Carrie tried her way first, which was a rather long and tedious process. When that didn't make any improvement we tried my way with no more satisfactory results. In spite of all we could do, there was an ugly pucker at the back of the neck where the picture showed a soft, graceful fold.

Finally, in desperation, I suggested telephoning to Mrs. Green. I never in my life knew anyone like her. She seems to understand sewing by instinct. You hear of people being born with a silver spoon in their mouths, and I certainly think Mrs. Green was born with a needle in her hand. In a moment she had explained away all our difficulties. It seems Carrie had cut the neck out too much in the back, and it needed building up a little before the collar could be properly adjusted.

"Doesn't it seem too perfectly ridiculous?" I said when the pucker had disappeared and we had returned to something like calmness. "Here are we, two grown women, who like to call our-

selves intelligent, struggling to do something that is not only irksome to us but for which we have no more talent or natural inclination than that chicken out there

has for landscape painting. Why is it we call Mrs. Green competent? It's because she goes ahead and does the things she can do well and doesn't attempt a lot of things outside her realm. Perhaps she can make her clothes at home cheaper than she can buy them, but is that any reason why we should go blundering on, spending a useless amount of time and energy making things that never look quite right when they are finished—all because we cannot get away from that old worn-out idea that the woman of the house should do her own sewing? There's no more reason why we should do our own sewing nowadays when ready-made things are so cheap and satisfactory than there is for us to make our husbands' suits and weave our own cloth, and all the other things that our great-grandmothers used to take as a matter of course."

Carrie's only reply to all this heresy was that she knew I was altogether wrong. Did I suppose for one minute that she would be worrying herself sick over sewing if it wasn't a great saving in money, etc., etc., and to prove her point she told me all the cost items for the dress she had just finished. I took them down just as she gave them to me, and this is what it showed.

6 7/8 yards percale at 10c.....	68 3/4c
3/4 yard chambray at 9c.....	6 3/4c
9 pearl buttons at 12c.....	9
Thread	5
Pattern	10

Total 99 1/2c

This was the actual money cost without taking into account the nerve-racking hours spent in making it, hours which might have been devoted to something that would have added much more to the family efficiency. Nor did it take into account the fact that, neat and substantial though the dress was, there was an unmistakable "amateurishness" about it, as well as a complete lack of that indefinable thing called style.

Then I got out a number of catalogues which had been sent to me from various large city stores, and we found any number of most attractive house dresses, priced some of them as low as 98 cents, though the average price was either \$1.25 or \$1.50. Carrie was surprised, and said she had never realized that ready-made dresses of such good style and quality could be bought so cheap.

Perhaps, as Carrie insists, these ready-made things won't "hold together" as long as the ones made at home, but even so I can't see that that is any special disadvantage anyhow in this day of ever-changing styles.

Billy was perfectly delighted when I told him I was going to send away for one of these dresses, and said he knew I'd come to it sooner or later. We selected one for \$1.25, which sounded, from the description, as much like Carrie's dress as any two could be: "Very becoming house dress of checked gingham, combined with plain chambray. The waist is made in bolero effect and has three-quarters length set-in sleeves. The skirt is plain and has two patch pockets of blue chambray."

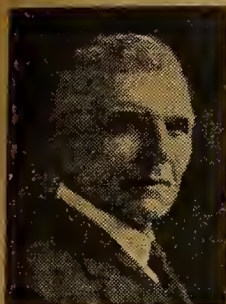
If it turns out to be as satisfactory as it sounds I shall buy everything I need this fall ready-made, and shall bend my energies to making money instead of trying, in such an inefficient way, to save a few pennies. Perhaps I shall be able, after all, to fill Mrs. Perrin's order for marmalade and make a little extra Christmas money. Wouldn't that be fine?

LATER: I was interrupted before I could finish my letter the other day. In the meantime my dress has come and is even nicer than I had expected. Billy says it is the prettiest house dress I've had, and I believe he is right. It will need to be shortened a little, but otherwise 36 fits me perfectly. The quality of material is quite equal to Carrie's dress.

Betty

Good Health Talks

By DR. DAVID E. SPAHR



EVERYTHING possible should be done by the expectant mother to keep herself in the best possible physical and mental tone. For the first, she will need to attend with especial fidelity to the requirements of hygiene, and for the second, to make her

environment as happy and her mind as care-free as she can. Nothing which will improve her health or save her pain or distress should be neglected.

She should have an abundance of pure air in her home and plenty of outdoor exercise. Gardening, walking, or other outdoor pursuits not too strenuous will help to keep her in good physical trim and will give variety and interest to her life.

Her clothing should be loose and comfortable, and as light in weight as consistent with proper warmth. Her diet should be simple, easily digestible, and not too great in quantity, but should be of considerable variety. Tea and coffee should be used sparingly. Fruits, brown bread, whole wheat bread, and laxative fruit syrups should be included.

As a wise preventive measure, she should have her teeth examined and treated, if necessary, by a competent dentist.

A cheerful, agreeable home atmosphere and loving attention from the other members of her family will do much by banishing worry and depression from her life.

Pain and Soreness of Left Side

My husband has suffered for eighteen months with a soreness and pain in his left side under his ribs. The soreness extends under the ribs and around to the back. It is accompanied by a stinging, burning pain. He has consulted three doctors; one said it was a strain, and the others owned up that they did not know just what it was.

Mrs. M. P., Kansas.

I THINK your husband's trouble will likely be found in the large bowel—the colon—possibly impaction or inflammation. Nothing short of a physical examination would reveal the real trouble. In the meantime take one tablespoonful of paraffin oil three times daily.

More Climate.

My husband is subject to catarrh, colds, and la grippe, and wants a better climate. We lived in the Black Hills for five years, and he was free from all of these things. Have planned to make our future home in Wisconsin or Minnesota, but want advice. We are farmers.

Mrs. C. F. V. D., South Dakota.

WHY not return to the Black Hills? Do not think either of the States would be an improvement. Perhaps Colorado, Kansas, Oklahoma, or Texas would be better.

Injury to Nails

My finger nails get sore and come off, or I injure them so they come off, and then they are slow about growing on again. After I have dropped something on them they hurt for a while, then apparently get well, but soon begin to leak matter from under the nail, then finally come off, and never are fully restored again. Only come out about halfway and then stop growing.

E. W. K., Washington.

WHEN a nail is severely injured and the nail comes off, it is never completely or perfectly reformed, as the matrix has become inflamed. You should not expect such a result.

Otitis

I have a son five years old whose ear runs continually. I have used an ear syringe for two years. His ear does not pain him. Mrs. W. B. P., Kentucky.

USE the following wash: Boric acid, 10 grains; aqua and alcohol, of each 4 drams. Mix and inject into the ear from five to ten drops night and morn-

Headache

What causes sharp pains in the head and left side? Could it be from eating too much sweets between meals?

W. S. S., Virginia.

Yes, and I would advise you to cut it out.

E



The world's greatest artists entertain you on the Victrola

No matter where you live, you can hear in your own home the best music of all the world. The Victrola brings to you the superb art of the most famous singers, musicians and entertainers who are the delight of thousands in the great musical centers. And on the Victrola you hear them absolutely true to life—just as though they were actually standing before you.

Any Victor dealer will gladly show you the complete line of Victors and Victrolas —\$10 to \$400—and play the music you know and like best. Write to us for catalogs.

Victor Talking Machine Co., Camden, N. J., U. S. A.

Important warning. Victor Records can be safely and satisfactorily played only with Victor Needles or Tungs-tone Stylus on Victors or Victrolas. Victor Records cannot be safely played on machines with jeweled or other reproducing points.

Victrola

To insure Victor quality, always look for the famous trademark, "His Master's Voice." It is on every Victrola and every Victor Record. It is the only way to identify genuine Victrolas and Victor Records.



Ask the Advertisers

Manufacturers who advertise in FARM AND FIRE-SIDE are anxious to tell you more about their goods than is contained in the advertisements. — Write for their catalogues. You are in no way obligated to buy when you ask for more information. Advertisers seek to give you all possible information as to what they have to sell, even if you do not buy at once.

They want you to know about the goods they have to offer, because they value your help in telling your friends and neighbors about them. If you know the good points of their wares you can do this.

So do not hesitate to ask them questions—advertisers in FARM AND FIRESIDE are all reliable. We have investigated every one of them and guarantee their reliability.

TWO BIG BARGAINS

Our Housewife Club

BY SPECIAL arrangement with the publishers of the Housewife, you can get this splendid paper for one year in connection with FARM AND FIRESIDE at a special reduced price.

The Housewife is a bright, entertaining monthly magazine containing many wholesome serials and short stories and articles of unquestioned merit. It is a magazine that a woman looks forward to receiving each month. It is well illustrated with the work of the best known artists. Housewife is edited by Lillian Dynevor Rice.

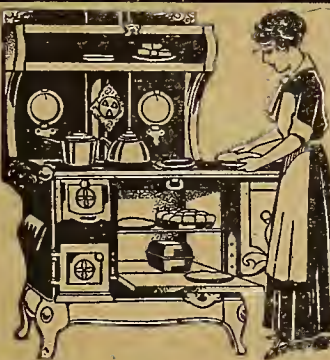
Farm and Fireside, 1 year, regular price 50c } Both for
The Housewife, 1 year, regular price 50c } 60 Cents

McCall Club

MCALL'S MAGAZINE needs no endorsement. It is easily worth \$1.00 a year. A single copy will often contain more than one hundred pages, and it is handsomely illustrated. It is a dependable fashion guide, and each issue contains from 50 to 60 of the latest designs, some of which are illustrated in colors, of the celebrated McCall patterns. The leading fashion experts of the world contribute to this magazine.

Farm and Fireside, 1 year, regular price 50c } Both for
McCall's Magazine, 1 year, regular price 50c } 70 Cents

FARM AND FIRESIDE, SPRINGFIELD, OHIO



HOOSIER Stoves Ranges FREE Heaters

To try in your own home 30 days free, no matter where you live. Show your friends. Send it back at our expense if you do not want to keep it. Hundreds of thousands in daily use. Perfect bakers, efficient heaters, made of high grade material, beautifully finished, smooth design, guaranteed for years by our Two Million Dollar Bond.

Ask your dealer to show you "HOOSIER" Stoves and Ranges. Write for our big free book showing photographs describing large assortment of sizes and designs of cast and steel ranges, cast cooks, soft and hard coal heaters and base burners to select from, explaining our free trial offer. Send postal today. Write name and address plainly. No obligations.

HOOSIER STOVE COMPANY
126 State St. MARION, INDIANA



Distillers' Grains

ATLAS DAIRY FEED contains three times the protein and fat contained in corn, oats, barley, bran, etc., and costs far less. Sign Coupon for FREE Sample.

Why pay \$26.00 for corn; \$26.00 for oats; \$21.00 for bran and \$27.75 for barley, when Atlas Distillers' Grains cost only \$22.00 per ton, bulk, f. o. b. Peoria?

Atlas Distillers' Grains will increase your milk and butter-fat production, and do it at a far smaller feed cost. Get the information right away.

Atlas Feed & Milling Co.
P. O. Box 54 PEORIA, ILL.

ATLAS contains from 27% to 30% protein and from 8% to 10% fat. Other feeds analyze about 10% protein and from 3% to 4% fat.

Free

Gentlemen—Please forward a FREE sample of Atlas Distillers' Grains, also FREE circular.



Nearly ALL CHAMPION Dairy Cows are fed Distillers' Grains.

Name _____
Town _____
State _____ R. F. D. _____



Children's Corner

Farmer Jones's Flowers

By Anna C. Chamberlain

THE birds sang in the hedges, the bees boomed in the clovers, and the breezes hummed cheerily through all the swaying branches.

Truly, Grandpa's home in the country was a delightful place. The twins, Tom and Billy, who had not been here for two years, when they were tiny tots of four, had quite forgotten how pleasant it was to run about under the trees and listen to all the lovely sounds. They were quite delighted when Grandma asked them to go down the hill and across the meadow, over to a small piece



"I don't really raise thistles"

of plowland where Grandpa was working, and carry him a drink of cool water.

"It may be a little easier going back by the road," said Grandpa when he had taken a long drink from the bright tin pail and hidden it in a shady place to keep cool till next time.

That is how Tom and Billy happened to come home beside the border of Farmer Jones's farm, and saw just beyond his fence such a fine patch of beautiful red flowers.

"Just like the park," said Billy, peering through the fence.

"Or the greenhouse," added Tommy, his head close by Billy's as they looked and longed.

Then they saw, right next to where they stood, a small gap in the fence quite large enough for a small boy to crawl through, and almost before they knew they were inside among the flowers which they so admired.

"Wouldn't it be nice to carry some of these to Grandma?" they said to each other eagerly, and then they began to pick.

It was not easy to gather these tall handsome flowers, for they were very prickly, much more so than a rose, and before they had pulled more than three apiece their little hands were quite sore.

As they stopped to suck their tingling fingers they saw far off at the other edge of the pasture, but coming right toward them, a tall man followed by a large dog.

"The man who owned the flowers, maybe," thought the little boys in round-eyed dismay. For some reason they fancied the man looked like a very cross person and the dog which trotted along in such a businesslike fashion they feared might be a very savage fellow.

Perhaps the man wanted the flowers for himself! Perhaps he would be very angry!

By this time the little boys had crept out through the same little gap by which they had come in and were scuttling down the road as quickly as their short six-year-old legs would carry them.

When they had run a little way and no loud angry voice called after them, they stopped a little to take breath, and then they looked at each other again and the same thought came into each round curly head.

They had been stealing? They who went to Sunday school every Sunday and could always say the Golden Text—unless it was very, very long—had been taking things without leave.

Perhaps it was because they were twins that they always thought the same things at the same time, but they did.

"We've got to take them right back," said Billy, and Tommy gave a great gulp, for he knew that this was true. It was not so easy going back, some-

how. There were stubby places in the road which they had not noticed before, and stones along the pathway that hurt their feet. But what was that to a pair of brave lads who were going to do right? And they walked steadily on until they came close up beside the tall man who was now at work on the very fence through which they had peered so longingly.

"These are yours," began Billy quickly, before his voice should have time to tremble.

"And we're sorry we stole," added Tommy, determined that Billy should not bear all the blame. And then they held up their beautiful bouquets—three large thistles in each—toward the tall man, who was none other than Farmer Jones himself.

"Hey? Hey?" said Farmer Jones in a most surprised way, and he set his lips together and swallowed hard. If he had not been such a very tall man with so many whiskers the little boys might have thought he was going to laugh. But he did not look at all cross now, nor did the big dog, who came up quite close and wagged his tail reassuringly.

"We took them without leave, you know," went on Billy, for the farmer looked very much puzzled.

"'Cause they were so pretty," added Tommy, helping out.

"Oh, I see!" said Farmer Jones, "and now you've brought them back. Now, that was exactly right, but you may just as well have them as not. Of course it's best to ask leave, and I'm real glad you've been taught right. But you're welcome to the flowers. You see, I don't really raise thistles, not as a regular crop, and I don't prize them one bit. You're entirely welcome to help yourselves at any time."

"Thank you," answered Billy. "We will."

"Thank you," said Tommy in his turn, and then they started to go home.

"Don't mention it," returned the farmer pleasantly. "Come and see us whenever you can find time."

"Thank you," replied Billy politely.

"We will," added Tommy, and as he and Billy hurried home to Grandma with the flowers the road seemed once more delightfully smooth and pleasant to walk upon.

Names and Romance

By C. I. Junkin

THERE'S no romance
In hog or swine;
And pig and pork
Do not sound fine;
But any man
Would quickly waken
To write a poem
On "Breakfast Bacon."

The Pride of Competition

By Wellington Brink

"I SEE from the papers that you have entered some chickens in the show," commented Mrs. Heighton's sister from the country. "I was rather surprised because you hadn't said anything about it in our many telephone conversations."

Mrs. Heighton brightened visibly.

"Yes," she said, "James and I decided we owned the equal of any pen of White

Old Aunt Mary's

By James Whitcomb Riley

WASN'T it pleasant, O brother mine,
In those old days of the lost sunshine,
Of youth—when the Saturday's chores were through,
And the "Sunday's wood" in the kitchen too,
And we went visiting, "me and you,"
Out to Old Aunt Mary's?

It all comes back so clear to-day!
Though I am as bald as you are gray—
Out by the barn-lot, and down the lane,
We patter along in the dust again,
As light as the tips of the drops of the rain,
Out to Old Aunt Mary's!

We cross the pasture, and through the wood
Where the old gray snag of the poplar stood,
Where the hammering "redheads" hopped awry,
And the buzzard "raised" in the "clearing" sky
And lolled and circled, as we went by
Out to Old Aunt Mary's.

And then in the dust of the road again;
And the teams we met, and the countrymen;
And the long highway, with sunshine spread
As thick as butter on country bread,
Our cares behind, and our hearts ahead
Out to Old Aunt Mary's.

Why, I see her now in the open door,
Where the little gourds grew up the sides and o'er
The clapboard roof!—And her face—ah, me!
Wasn't it good for a boy to be
Out to Old Aunt Mary's?

And, O my brother, so far away,
This is to tell you that she waits to-day
To welcome us:—Aunt Mary fell
Asleep this morning, whispering, "Tell
The boys to come!" And all is well
Out to Old Aunt Mary's.

(By permission of Bobbs-Merrill Company)

Wyandottes that would be shown, and we wanted to surprise everyone. Of course, one never can tell what an eccentric poultry judge may do. Justice Carson of Osage City, though, who is showing some fancy Partridge Wyandottes, says we can't help but win on Whites. I even believe he's afraid we'll take sweepstakes.

"I laugh every time I think of how James toiled getting the birds ready. Because we wanted to spring a surprise we didn't dare ask you how. First, it was the new method of eradicating lice and mites. In the cover of an empty 50-pound lard pail James punched some holes. He then scattered a mixture of

'clean' dust and lice powder in the bottom and laid the pail on its side. This done, he spent half an hour catching Silver King, who must have been aware that a broken or pulled tail feather might disqualify.

"Inside the can went the King; on went the cover. As the can began to turn, Silver King began ruffling his feathers beautifully, in an effort to maintain his balance, which was in accordance with the plan to shake the vermin killer up next to the bird's skin.

"It was a strong, stifling dust. By the time Silver King had been rolled the length of the yard, he was—well, just blue in the face. James got red. I went a ghastly white. So between James, me, and the cock we were thoroughly patriotic. Only after an appalling illness of fifteen or twenty minutes did our Silver King, our prospective prize-winner, whom we thought we'd surely killed, recover. The rest of the flock we rolled for more moderate distances.

"The birds' next big preparation for the show was a manicure and bath. James brought the exhibition coop right into the kitchen. We worked at night, so the neighbors wouldn't know what we were up to. At that, Silver King nearly blew the lid from secrecy with one of his most raucous greetings to the return of light. A blanket thrown over the coop quieted him. James and I knew from investigation in poultry journals just the best ways of scrubbing the birds' shanks and toes and of washing and drying the feathers without disarrangement.

"Then was when we faced a nearly fatal second Waterloo. I got too much bluing in the tub. When those Wyandottes came out of the water they were a dirty pale blue. I nearly sat down and cried. I was so discouraged. Well, we rinsed and we rinsed and we rinsed. Luck was with us. Next morning I could swear I'd never seen fowls of a purer, fluffier white.

"And now—oh, I'm so happy! James and I just know we'll win first prize. Why—"

"By the way," put in her sister, "what, may I ask, is the prize?"

Mrs. Heighton stiffened. "The prize? Why—oh—er I believe the management offers one of the Racket's crimson kerosene lamps. Of course," she apologized hastily, "it really would be fine were it not for the fact that we don't need it. I'm glad we entered the pen, anyway. It's so much fun—competing, you know.

"Dear, dear," she sighed heavily, "I wonder how we can use the prize! Possibly Aunt Jenny—"

Which, thought her sister; was counting her chickens before they were hatched.

THE man who sows wild oats always pays too much for the seed.

IF YOU live grandly and happily when the days are sunny, the hours which are rainy will have no dread for you.

New Puzzles

A Square Word Puzzle

The following descriptions should form a square word, the same from top down or from left to right:

1. A recess.
2. A lazy fellow.
3. A girl's name.
4. Flocks.
5. To rub out.

Omitted Words

The words to be supplied in the following sentences will make a well-known saying:

- How long will you — there?
Are you — it is correct?
— will always be welcome.
John and Kate — going there to-night.
It is — to do good.
Let us — be up and doing.
Will you — with me to-morrow?
Go —; never falter.

Answers to Puzzles

Puzzles Printed Last Issue

A Rhyming Rebus

Pledge.

EW



Another advantage of the present-style skirt

A Review of the Season's Fashions

By GRACE MARGARET GOULD



No. 3136—One-Piece Dress, Box-Plaited Effect. 34 to 42 bust. Width of skirt, three yards. Price of pattern for complete costume, fifteen cents



No. 3136



No. 3121



No. 3021



No. 3142



No. 3122
No. 3123



No. 3142



No. 3121



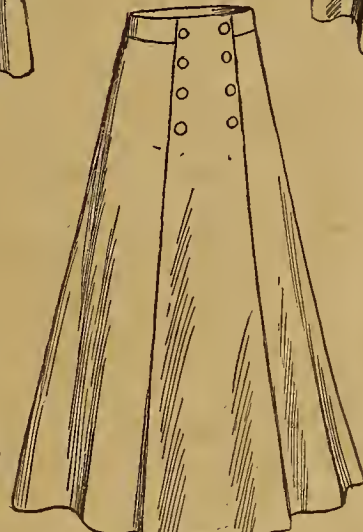
No. 3021



No. 2992



No. 3122
No. 3123



No. 2992

No. 3021—Long-Shouldered Waist, Surplice Style. 34 to 40 bust. The price of this pattern is ten cents

No. 3121—Top Coat with Novelty Belt. 14 to 20 years. Price of pattern is ten cents

No. 2992—Four-Piece Skirt, Panel Front. 26 to 32 waist. Width, three yards. The price of this pattern is ten cents

YOU can see a genuine pageant of style over on Fifth Avenue these days. The summer girl has returned to New York and is reveling in all the new clothes Madame Fashion has prepared for her.

Variety is the keynote of the pageant, and let me assure you it is a most fascinating variety too.

The Fifth Avenue Girl herself is a delight to see. She knows she is just right, and this consciousness helps her to look and act her best. What she wears, speaking of her collectively, is what all the best-dressed girls throughout the country will also want to wear this autumn and winter. Let us study the pageant and see what there is in the clothes display that will appeal most to us.

The very new change that we are sure to spy first is what the fashion designers call the Moyen Age effect. It is really just the long-waisted effect, and it is seen in many types of dress.

Coming down the Avenue on a morning shopping tour is the Fifth Avenue Girl in an everyday dress of dark blue velour de laine. The dress is one-piece and shows a pronounced drop waistline. It is trimmed with gay wool embroidery.

Then there is the coat suit which the Fifth Avenue Girl wears with so much distinction. This, too, shows the long waistline effect, indicated either by a belt or a band of fur.

There are two other types of costume seen very much just now on the Avenue. One is the Russian blouse suit of velvet trimmed with fur, the fur being used in a band at the bottom of the straight full skirt, for the collar, the cuffs, and also to trim the bottom of the Russian blouse coat. The other type is the coat dress worn with the redingote. One-piece satin dresses are very fashionable this autumn made with sleeveless redingotes of serge or velour.

A study of the fashions on Fifth Avenue brings out prominently the fact that the very short flaring skirt is out of style, at least for street wear; that skirts hang straighter, though they are still full and are much longer than they were this spring; that coats are longer too, and that hats are either very high and narrow (many in draped effect), or they are very broad of brim. There is a new sailor shape where the brim is broad and drooping that is much liked. This type of sailor is along Quaker lines, and is generally shown in a combination of felt and velvet—the brim, felt; the crown, velvet; the trimming, worsted embroidery flowers and perhaps a band of metal ribbon.

The colors that are leaders this fall are bottle-green, a new dark shade of red called "bivouac," blues that look almost black, and other blues which have a decided greenish tinge. Terra-cotta and paprika-red are introduced in combination with dark tones. Nigger-head brown and taupe and artillery gray are very fashionable.

In the way of trimming, fur leads everything else. It is used in bands—narrow and wide ones—and it is used in motifs in combination with cloth, braid, and beads. Georgette crêpe waists have their deep collars trimmed with fur and

the deep cuffs edged with fur, and fur buttons on waists of this sort are quite the vogue.

Neckpieces and muffs are extremely good style made of a combination of duvetyn or fine velour and fur. With a set of this sort the muff is round, the collar cape shaped with a high-standing collar as well, and to complete the set there is often a high-draped turban which is a combination of the fur and cloth.

Other trimmings that are fashionable are wool embroidery flowers, bead tassels, and bead motifs and brocaded ribbons. Many dresses have an effective touch given them by the application of a single design cut from a piece of brocaded ribbon.

It is to be a special season of combinations. For the very best dress, velvet and chiffon or velvet and Georgette crêpe will be combined. Velvet will also be used for the body of a dress, with broadcloth for collar and cuffs. Many dresses for semi-formal occasions will show quaint velvet basques buttoned straight down the front and worn with taffeta or brocaded silk skirts.

A tunic of tulle edged with a broad band of satin, or plaited tulle tunic, can be used with good effect to freshen up a satin evening dress. Filmy tunics are decidedly the style and, by the way, the dancing gowns this season are still to be fluffy and full, though there is less bouffancy arranged at the hips.

The fact that so many one-piece dresses are to be worn brings the separate coat into greater popularity than ever. These coats are remarkably good-looking. Their collars are big, many of them in cape effect. Frequently a soft worsted coat, say in a dull green tone, will have a cape collar of the self-fabric and over this a fur collar of imitation leopard's skin or Belgian hare. Such a coat as this has very big pockets, and it hangs straight, but with much fullness at the bottom.

Then there is another type of separate coat extremely fashionable which has the upper portion fitted and the lower part made with a decided flare. Many of these coats will be seen this winter developed in the imitation fur fabrics which are so much the vogue. There is an imitation of baby lamb, an imitation of sealskin and of astrakhan, all extremely good-looking.

Plush is another material high in favor this year, not only for winter coats but for trimming purposes. For instance, a suit coat or a long separate coat may be trimmed with plush, using it for the collar, the cuffs, and perhaps the loose belt.

Dyed moleskin is a very fashionable trimming. For instance, a one-piece dress of broadcloth which has crêpe-de-chine revers and flat collar will have an edging of dyed moleskin. The same fur in a rather narrow band will outline the two pockets of the slightly gathered skirt, and in a wider band will trim the bottom of the skirt. A greenish-gray is the most fashionable color in which the mole fur is dyed.

Our Fashion Catalog is FREE

Ask for No. 74FF

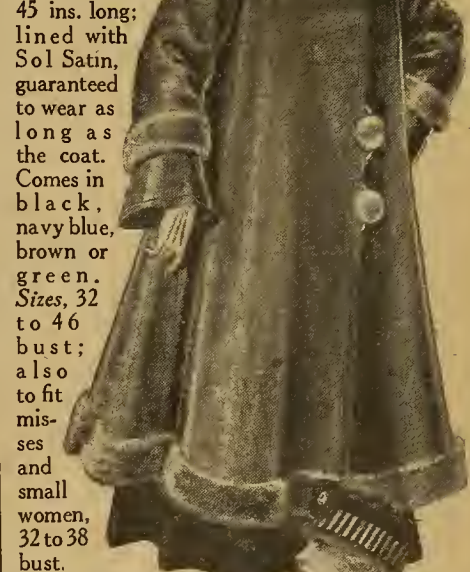


Sent Free on Request

If you are interested in the new Styles and would like to see what well dressed New York women will wear during the coming Fall and Winter, you should sit right down and write us a Post-card asking us for our new Fall and Winter Catalog, No. 74FF.

Here is a stylish Winter Coat

5-FF 1000—A stylish Coat of warm wool Velour—a nice material which will give excellent wear. The collar and flare cuffs are trimmed with Beaver fur cloth in brown only; collar may be worn turned up as pictured or turned down in cape effect. Flare cuffs and bottom of coat are also trimmed with Beaver fur cloth. Fastens with Beaver cloth buttons; 45 ins. long; lined with Sol Satin, guaranteed to wear as long as the coat. Comes in black, navy blue, brown or green. Sizes, 32 to 46 bust; also to fit misses and small women, 32 to 38 bust.



\$19.98

1-FF 1001—Tailor-made Suit of Up-to-date Style, made of fine all-wool Poplin. The coat is cut full and is held at waistline by a button trimmed belt of self material. It has a fashionable new cape collar which is trimmed with brown Beaverfur cloth; cuffs and bottom of coat are Beaver trimmed to match. Has two patch pockets; lapels may be fastened across chest; lined with good quality satin; length about 36 ins. The flare skirt has yoke at top and fastens at left side. Comes in brown, navy blue or dark green. Sizes, 32 to 46 bust measure, 23 to 32 waist measure and 37 to 44 skirt length; also to fit misses and small or short-waisted women, sizes, 32 to 38 bust measure, 23 to 28 waist measure and 37 to 40 skirt length \$19.98

We pay all mail or express charges to your town no matter where you live and we guarantee to please you or refund your money.

BELLAS HESS & CO
WASHINGTON, MORTON & BARROW STS.
NEW YORK CITY, N.Y.

Which Book Shall We Send to You?

Get Wholesale Prices on Heaters of All Kinds

Cash or Easy Payments. We Pay Freight and Ship Within 24 Hours



Kalamazoo Emperor Mission Range

See What You Can Save On a Good Baking Range

Shown on page 10. Many other styles like it in our catalog with or without popular white enameled splashers backs and oven door fronts. Write for copy today.



Kalamazoo Crown Heater

Shown on page 71. Big base-burners, small heaters or hot-blast stoves. All represented in the Kalamazoo catalog—and at the right price. Latest beautiful designs.

Here's Furnace Comfort at Usual Stove Cost

Kalamazoo Pipeless Furnace—a wonderful, popular warm-air heating plant. Low in first cost—easy to install—floods the whole house with waves of warm air. Thousands of homes are ideally fitted for this kind of a furnace. Write and get our special catalog telling all about it. We also sell pipe furnaces and draw up free plans showing complete plan of installation.

Mail the Coupon or Write a Postal Today

Here's the latest in stoves and ranges. Beautiful designs—latest styles—every one at popular wholesale price—direct to you from manufacturers. **Newest improvements—big work-saving features**, such as popular white enameled splashers backs, drop oven door fronts, etc. Send for our new, big stove and range book today and see how you can get one of the best-made ranges in America "direct to you" from Kalamazoo—and at a money-saving price.

Or, If It's a Warm-Air Furnace That You Want, Ask for Our New Furnace Book

Get our unbeatable money-saving offer on the popular **Kalamazoo Pipeless Furnace**. Heats the whole house through one register. Easy to install. Simply built, low in price—and unmatched for giving you the greatest possible heat from a small amount of fuel. Write today—don't miss it.

Cash or Easy Payments—30 Days' Trial—One Year Approval Test—\$100,000 Bank Bond Guarantee—And We Pay the Freight

We have three catalogs, one on Kalamazoo Coal, Wood and Gas Ranges, one on Kalamazoo Pipe and Pipeless Furnaces, and one on Kalamazoo White Enameled Metal Kitchen Cabinets. Please tell us which catalog you want, as numbered in coupon at the left. **Ask for Catalog No. 183.**

Kalamazoo Stove Co. Manufacturers Kalamazoo, Mich.

"A Kalamazoo Trade Mark Registered Direct to You"

"A Kalamazoo Direct to You"
Trade Mark Registered
STOVE AND RANGE CATALOG

"A Kalamazoo Direct to You"
Trade Mark Registered
FURNACE CATALOG

Spread Sunshine In the Kitchen

Kalamazoo Stove Co.,
Kalamazoo, Mich.

Please send Catalogs marked below.

Name _____

Address _____

City _____ State _____

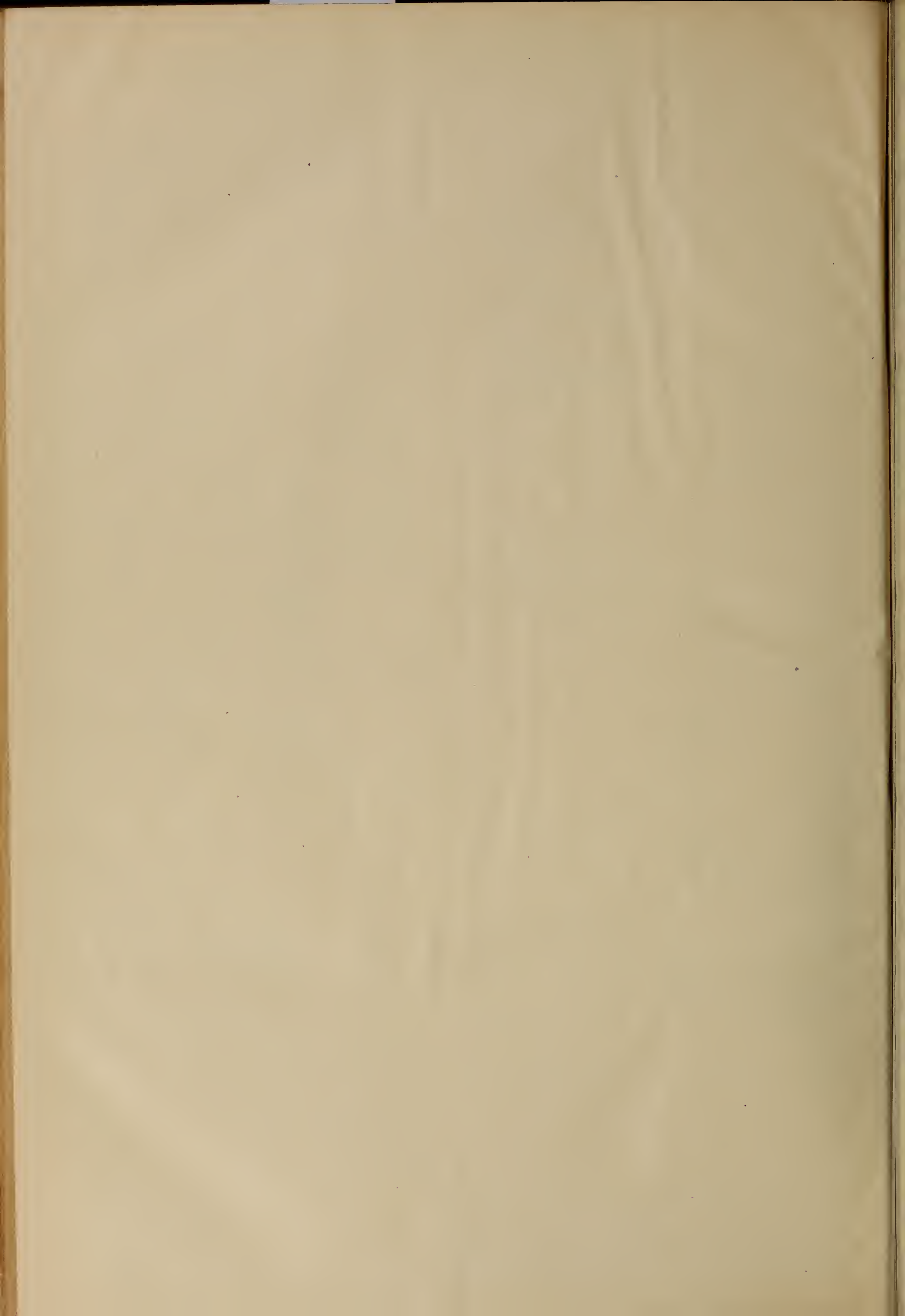
Mark an X Opposite Books Wanted

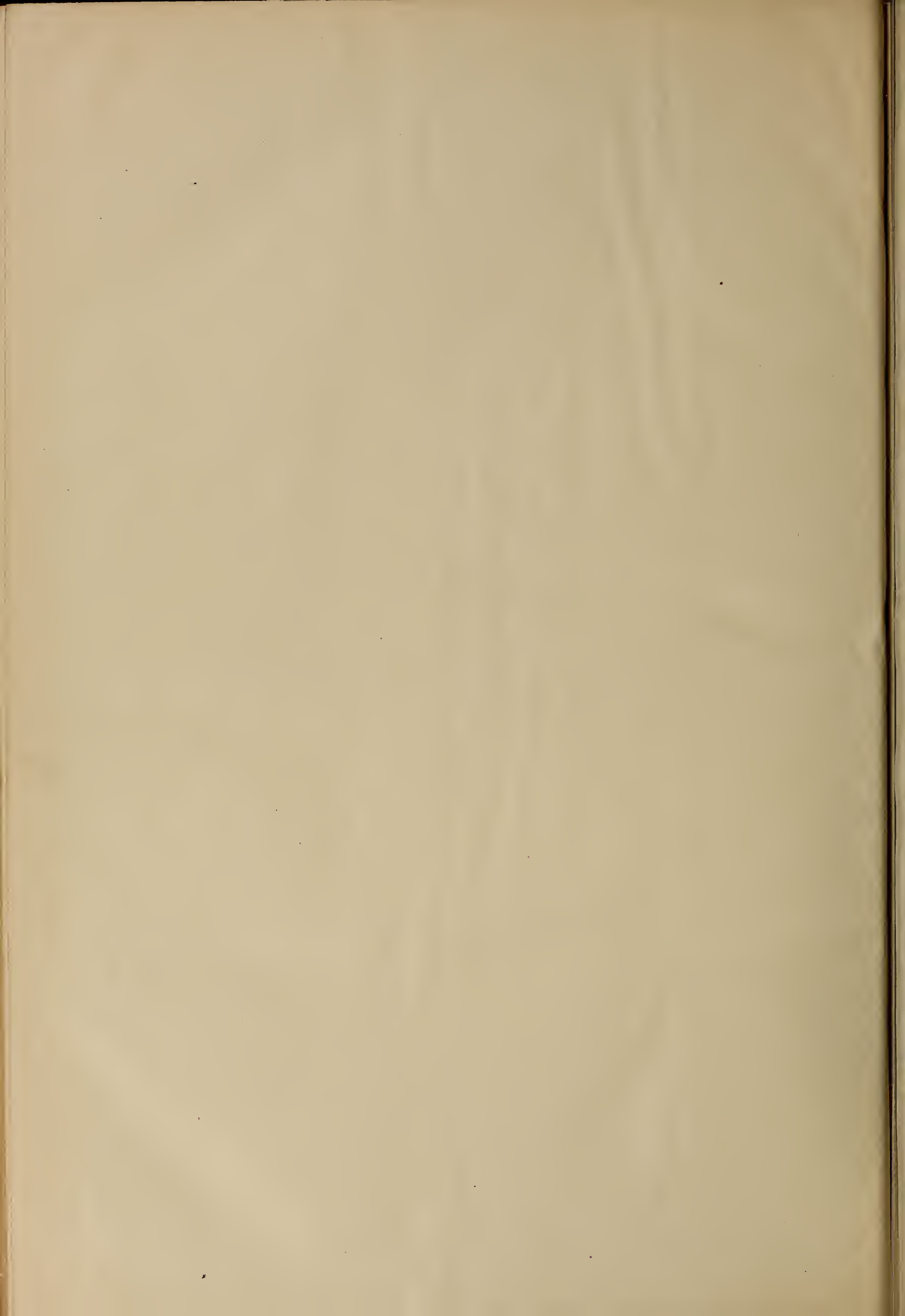
Coal and Wood Stoves and Ranges and Gas Ranges Book No. S 183 ☐ Pipe and Pipeless Furnaces Book No. F 183 ☐

White Enameled Metal Kitchen Cabinets and Tables. Book No. K 183 ☐



Write Your Name Here and Mail Today







F22		Farm a	
Vol. 39, 1915-16.			
Feb. 7, '17		Aug. 11	
FEB 1 1938		P. H. H. H.	
Rm. 3955			

